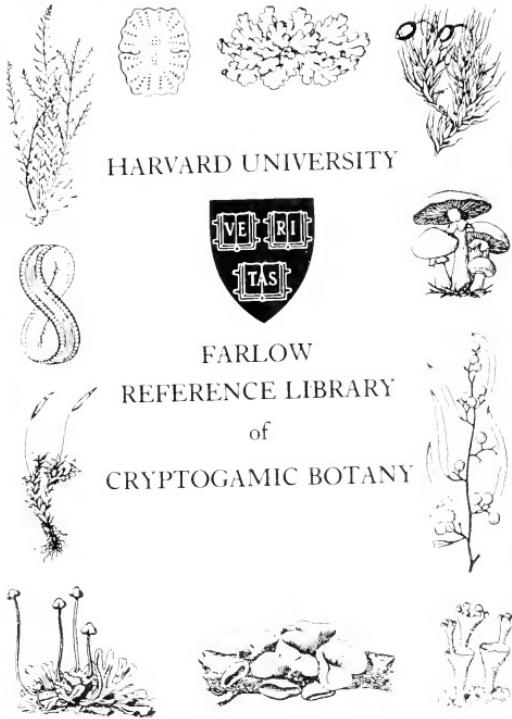




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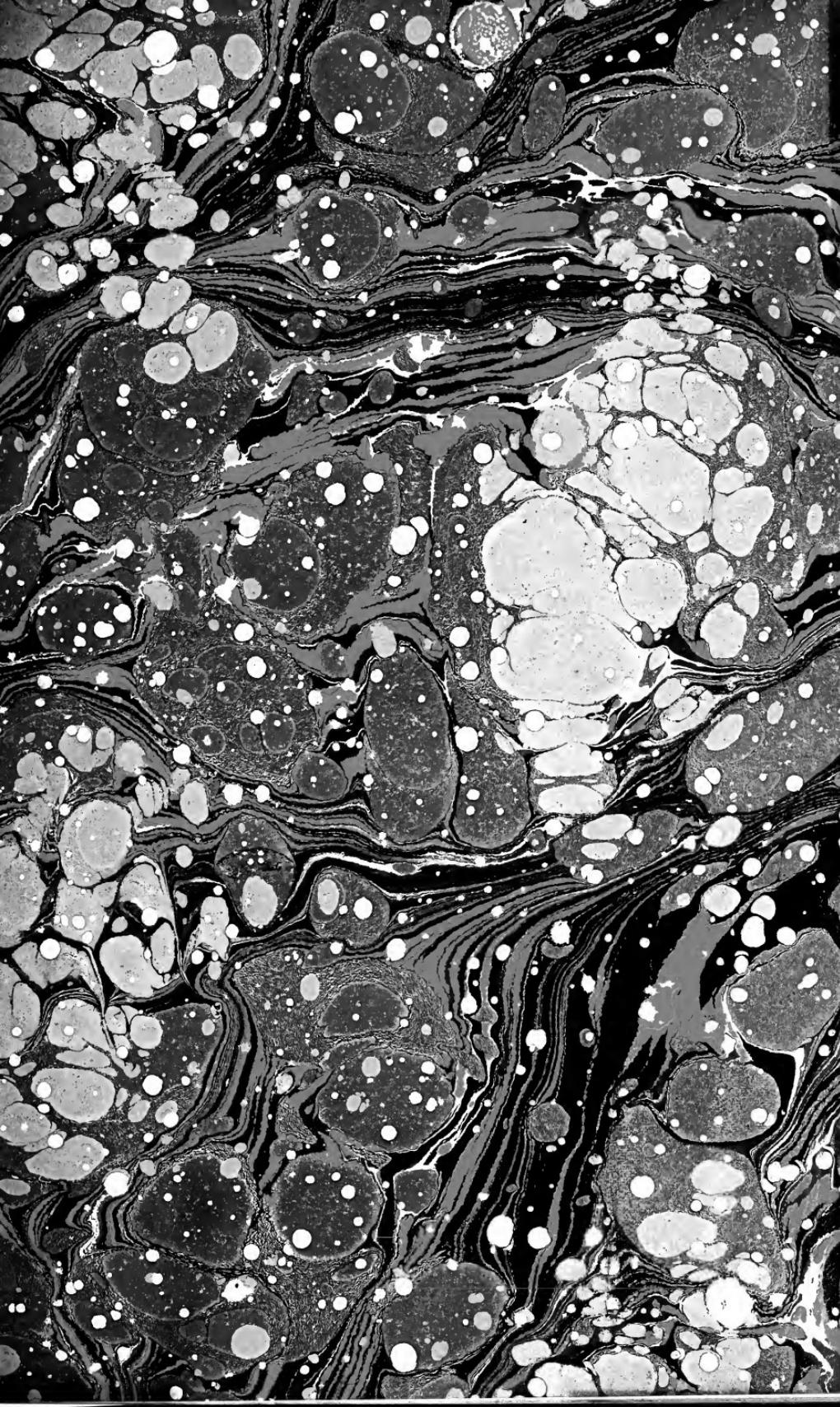
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Grevillea,

A QUARTERLY RECORD OF
CRYPTOGAMIC BOTANY
AND ITS LITERATURE.

EDITED BY M. C. COOKE, M.A., A.L.S.,

*Author of "Handbook of British Fungi," "Fungi, their uses," &c.,
"Rust, Smut, Mildew, and Mould," &c., &c.*

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Grevillea,

A QUARTERLY RECORD OF CRYPTOGAMIC BOTANY
AND ITS LITERATURE.

NUMMULARIA AND ITS ALLIES.

By M. C. COOKE.

The following observations are in continuation of those on *Xylaria* (Vol. xi., p. 81), and *Hypoxylon* (Vol. xi., p. 121), to which, in the first place, these additions and corrections will have to be made :—

XYLARIA.

a. XYLOGLOSSA. Sect. b.

53a. *Xylaria cynoglossa*, Cke.

Umbrina, linguæformis (5-6 unc. longa $1\frac{3}{4}$ unc. crassa), brevisime stipitata, carne albo. Peritheciis congestis, cylindricis, atris, ostiolis lemiter papillatis, atris. Ascis cylindraceis. Sporidiis arcte fusiformibus, rectis curvulisve, fuscis ($0\cdot016\text{--}0\cdot018 \times 0\cdot004$ mm.).

On wood. Tweed River (R. Fitzgerald).

62a. *Xylaria Thwaitesii*, Berk. & Cooke in Herb. Berk., 8473a.

Suberosa, cylindrica, rigida, fragilis, obtusa, demum cava (1-2 in. $\times \frac{1}{4}$ unc.) Stipite brevi vel obsoleto, subcrasso, glabro. Peritheciis carbonaceis, subglobosis, mediis, ostiolis haud papillatis. Ascis cylindricis. Sporidiis fusiformibus, rectis curvulisve, fuscis ($0\cdot015\text{--}0\cdot018 \times 0\cdot005$ mm.).

On wood. Ceylon.

Allied to *X. fistulosa*, Lev., but externally quite smooth. Sporidia broader.

c. Capitulum subglobose.

79a. *Xylaria cretacea*, Berk. & Br. Linn. Trans. Ser. 2, Vol. i., p. 405.

Magnum (1- $1\frac{1}{2}$ unc. alt.) Subglobosum, stipitatum, e candido albido, subrugosum, lineis tenuibus fuscis reticulatum, ostiolis nigris, minute punctatis, intus stratis ligneis fragilibus e stipite radiantibus formatum ; perithecia oblonga, nigra, ostiolis vix prominentibus munita ; sporidia oblonga, brunnea, continua, finibus acutis, $0\cdot035\text{--}0\cdot045 \times 0\cdot013\text{--}0\cdot02$ mm. *Hypoxylon cretaceum*, Berk. & Br.

Brisbane, Australia.

85a. **Xylaria glebulosum**, *Ces.* 1494.

- d. Capitulum depressed, peltate.
- 90a. **Xylaria frustulosa**, *B. & C.* 1534.
 90b. " pauxillum, *Ces.* 1375.
 90c. " Berterii, *Mont.* 1395.
 90d. " Natalensis. *Berk. in Herb.* Sporidia not developed.

RHOPALOPSIS.

In this genus, as proposed (Vol. xi., p. 93), some additional details are required.

a. Stroma simple.

1. **Rhopalopsis coenopus**, (*Mont.*) No. 1488.
Sporidia lanceolate, ·04-·045 × ·009 mm.
2. **Rhopalopsis aggregatum**, (*W. & C.*) 1427.
3. **Rhopalopsis Angolense**, (*W. & C.*) 1519.
Sporidia ·012-·015 mm. long.
4. **Rhopalopsis clavus**, (*Fr.*)
Sporidia lanceolate, ·04 × ·01 mm.
5. **Rhopalopsis confusum**, *Berk. & Cooke.*
Gregarium, stipitatum, simplex. Capitulis globoso-depressis, glaucis, demum nigris, in stipitem flexuosam attenuatis ; peritheciis innatis, globosis, ostiolis punctiformibus. Ascis sporidiisque (?). On wood. Brazil.
6. **Rhopalopsis micropus**, (*Berk.*) 1491.
Sporidia ·03-·038 × ·009-·012 mm.
7. **Rhopalopsis congestum**, (*B. & Br.*) 1402.
Sporidia ·015-·017 × ·013-·015 mm.
8. **Rhopalopsis Berkeleyanum**, *Cooke.* (*Hypoxylon cænopus*, var. *Berk.*)
Cæspites suborbicularis (1-2 unc. lat.). Stromatibus clavatis, stipitatis, superne applanatis, dense congestis, atris, opacis, simplicibus, rarissime confluentibus, stipite brevi, ruguloso, infra attenuatis. Peritheciis minutis, numerosissimis, compressis, prominulis. Ascis cylindraceis. Sporidiis ellipticis, inæquilateralibus, continuis, fuscis, ·008-·01 × ·004 mm.

On bark. Brazil (Glaziou, 8542, 8543). Ceylon (No. 60).

Although resembling *R. cænopus* in habit, easily distinguished by the very much smaller perithecia, and different sporidia.

b. Stroma multipartite.

9. **Rhopalopsis cetrarioides**, (*W. & C.*) 1489.
Sporidia lanceolate.
10. **Rhopalopsis lichenoides**, (*Berk.*).
Sporidiis lanceolatis, ·035 × ·008 mm.
11. **Rhopalopsis Puiggarii**, (*Speg.*) 1232.
12. **Rhopalopsis contracta**, (*Speg.*) 1233.

13. **Rhopalopsis Kurziana**, (*Curr.*) *Xylaria Kurziana*. *Curr. Linn. Trans.*, Vol. i., p. 129.

Solitaria vel cespitosa, vel etiam connata ($\frac{1}{4}$ -1 unc. long). Capite castaneo subhemispherico; peritheciis prominentibus scabro, sporidiis nigro-fuscis amygdaloideis (·016-·017 mm. long).

On the ground. Calcutta.

14. **Rhopalopsis microcephala**, (*Mont.*) 1256.

- 15 **Rhopalopsis xylarioides**, (*Speg.*) 1490.

CAMILLEA.

The species of *Camillea* will stand as follows:—

a. Stroma elongated.

1. *Camillea Leprieurii*, *Mont.* 1314.
2. " *bacillum*, *Mont.* 1315.
3. " *mucronata*, *Mont.* 1318.

b. Stroma abbreviated.

4. *Camillea cyclops*, *Mont.* 1316.
5. " *labellum*, *Mont.* 1317.
6. " *Javanica*, *Mont.* MSS.
7. " *macromphala*, (*Mont.*) 1412.
8. " *Surinamensis*, *B. & C.* 1319.

USTULINA.

We venture to add three species to this genus, of which one is undescribed. There appears to be little doubt that the *Hypoxyylon pavimentosum*, Ces., is really an *Ustulina*, and we do not hesitate to add *Sphaeria tuberiformis*, Wallr., although we have seen no authentic specimen. It is also possible that *Sphaeria teres*, Schw., may belong to this genus, but the hollow bullate stroma, in the specimens we have seen, might result from age or attacks of insects, hence we prefer to leave it in *Hypoxyylon*.

- Ustulina tessulata**, (*Hypoxyylon tessulatum*, Berk. in Herb., No. 8550.)

Stromate superficiali, pulvinato-lobato, undulato, maximo, crasso, tessulato-ruguloso, atro-fuligineo, intus demum excavato, peritheciis compressis, stipatis, monostichis, periphericis, ostiolis punctiformibus. Ascis cylindricis. Sporidiis lanceolatis, magnis, fuscis (·04-·05 × ·008-·009 mm.).

On wood. Bombay.

1. *Ustulina vulgaris*, *Tul.* 1328.
2. *Ustulina Brasiliensis*, *Speg.* 1329.
3. *Ustulina macrosperma*, *Mont.* 1330.
4. *Ustulina zonata*, (*Lev.*) 1331.
5. *Ustulina tessulata*, *Berk.*
6. *Ustulina pavimentosa*, (*Ces.*) 1374.
7. *Ustulina tuberiformis*, (*Wallr.*) 1428.

NUMMULARIA.

Bearing in mind the salient features of the genus *Nummularia*, as already given, "Stroma disc shaped, or cup shaped, adnate, marginate," we are compelled to dispute the position of one or two species which have been introduced into it. *Nummularia punctulata*, Sacc. is *Diatrype punctulata* Berk. and Rav. and the most unlike a *Nummularia* that could possibly be found. The stroma is neither "disc-shaped" nor "cup-shaped," and extends for many inches after the manner of *Diatrype stigma*. Indeed it compels one to inquire what is the use of the diagnosis of a genus at all, if it is to be utterly set at defiance. *Nummularia punctulata* is plainly and distinctly an effused *Hypoxyton*, and nothing but casuistry can make anything else of it.

Nummularia Wrightii Sacc. exhibits a similar error in an opposite direction. This *Hypoxyton Wrightii* B. & C., is simply a large, nearly globose, *Hypoxyton*, neither "disc shaped" nor "cup shaped" but almost as globose as the ordinary form of *Daldinia concentricum*. It cannot be justified as a *Nummularia*.

Next we have two peculiar forms of *Hypoxyton*, included in *Nummularia* which have certainly no affinity with what is considered usually to be the type form of *Nummularia*. These are *N. placentiformis*, and *N. sub-orbicularis*, and if they are to be regarded as good species of *Nummularia*, then there must be associated with them *Xylaria cerebrina*, *Hypoxyton Petersii* and *Hypoxyton Broomeanam*. The latter more resembling *Nummularia* than any of the species included within it, to which we have taken exception. With all deference to Professor Saccardo, after having seen about twenty specimens of *Hypoxyton sub-orbicularis* Curr. of various forms and dimensions, we cannot recognise in it a resemblance to *Nummularia* with its "disc shaped," or "cup shaped" stroma. At any rate it is a close ally of such species as we have named in conjunction with it.

Again if *Hypoxyton glycyrrhiza* B. & C. is relegated to *Nummularia*, a dozen species, with precisely the same form, must follow it. Either all sub-discoid forms, that are plano-convex in section, must go with it, into *Nummularia*, or it must retire to *Hypoxyton*.

We do not by any means dispute the right of these species, such as we have in view, to a place in *Nummularia*, but we contend that one species alone cannot be accepted and the residue excluded. Another feature in support of their relationship to *Nummularia* is the sterile margin of the stroma. If accepted as *Nummulariæ*, then the genus should be sub-divided into two sections, with *Nummularia discreta* and its immediate allies as the type of one section and *Nummularia Bulliardii* of the other. In accordance with these views we have suggested a re-arrangement of the genus.

Space will not permit of our criticizing the species in detail, but we cannot forbear to point out that the *Sphaeria clypeus* of

Schweinitz cannot be synonymous with *Nummularia Bulliardii*, to which it is referred.

MEASUREMENTS.—

Nummularia discreta, Tul. (1529).

We have seen no specimens in which the sporidia approximate to ·015-·018 mm. The usual dimensions we have recorded are ·013 × ·01 mm.

Nummularia obularia, (Fr.) (1540).

Sporidia ·008 × ·003 mm.

Nummularia clypeus, Schinz. (1524).

Sporidia ·020-·021 × ·008-·01 mm.

Nummularia gigas, Plow. (1531).

Our measurements certainly do not exceed ·006-·007 × ·003 mm.

EMENDATIONS.—The following species will have to be excluded from this genus :—

1532. *Nummularia frustulosa* (B. & C.), Sacc.

Will be *Xylaria frustulosa* (B. & C.)

1533. *Nummularia Wrightii* (B. & C.)

Must stand as *Hypoxyton Wrightii*, B. & C.

1534. *Nummularia punctulata* (B. & Rav.)

Must remain as *Hypoxyton punctulatum*, B. & Rav.

1535. *Nummularia placentiformis* (B. & C.)

Will still be *Hypoxyton placentiforme*, B. & C.

1536. *Nummularia suborbicularis* (W. & Curr.)

Remains as *Hypoxyton suborbiculare*, W. & C.

1542. *Nummularia spondylina* (Fr.)

From the specimens we have seen this has no affinity with the present genus, and is therefore *Hypoxyton spondylinum*, Fr.

1544. *Nummularia Artemisiæ* (Schw.)

Is a *Dothidea* with tetrasporous ascii and uniseptate brown sporidia ·016 × ·007 mm., according to specimen from Schweinitz. It will stand as *Dothidea Artemisiæ* (Schw.).

1545. *Nummularia subaffixa* (Schw.)

Has hyaline allantoid sporidia ·008 mm. long. It will be *Diatrype subaffixa* (Schw.), and is an ally of *Diatrype stigma*, Fr.

The above alterations are made, as we believe, entirely in the spirit of Professor Saccardo's interpretation of the genus. Such species as *Hypoxyton cerebrina*, Fee., *Hypoxyton Wrightii*, B. & C., *Hypoxyton suborbiculare*, W. & C., and some others, could not possibly be regarded as having any relationship to the species now included. There are some four or five species included in our list, which we have never seen, and these are included on the faith of the diagnoses, in which we have followed Saccardo.

ADDITIONS.—The following diagnoses of species not included in the "Sylloge," under any name, will be found supplemented by

the classified list in which the numbers are quoted of such as are to be found in the same work.

Nummularia discincola (Schwz.), *Sphaeria discincola*, Schw. Syn. Car., No. 63. *Anthostoma discincolum*, Sacc. Syll., No. 1104. The authentic specimen examined by Currey, and the sporidia figured, is a *Nummularia* differing in no respect, as far as we can judge from *Nummularia discreta*, to which species it was referred by Tulasne. What the species described by Fries (S. M. ii., 368) may be we do not venture to determine, but we have sufficient evidence that the *Sphaeria discincola* of Schweinitz and of Currey, is a species of *Nummularia*, with sporidia from $\cdot 013 \times \cdot 01$ mm. Wherefore it should be placed in *Anthostoma* is one of the mysteries we fail to comprehend.

5 **Nummularia Baileyi** (Hypoxylon Baileyi B. & Br.)

Erumpens, orbicularis, cupulata ($\frac{1}{4}$ - $\frac{1}{2}$ unc. diam.), margine incrassato elevato, disco ostiolis prominulis asperato. Peritheciis elliptico-ovatis, centro immersis; ascis cylindricis. Sporidiis ellipticis, fuscis, variabilis ($\cdot 013$ - $\cdot 02$ mm. long.).

On wood. Brisbane, Queensland (Bailey, 428.)

14. **Nummularia clypeus**, (*Sphaeria Clypeus*, Schwz., Syn. Car., No. 42).

Explanata, ambitu elliptico immersa, atro-nitens, ostiolis conicis prominulis exasperato (1-3 in.) margine ligneo undulato cingitur. Ascis cylindraceis. Sporidiis ellipticis, utrinque attenuatis, amygdalaeformibus, continuis, fuscis ($\cdot 02 \times \cdot 008$ mm.).

On branches of *Catalpa*, &c. N. America (Dr. Curtis).

16. **Nummularia macula** (Schwz.) *Sphaeria macula*, Schw. Syn. Car., No. 38.

Suborbicularis, erumpens, convexo-applanata, atra, ostiolis minutis punctiformibus notata. Ascis cylindraceis. Sporidiis late ovalibus atrofuscis ($\cdot 012 \times \cdot 009$ mm.).

On bark of *Platanus*.

Much smaller than *N. clypeus*.

26. **Nummularia australis**, Cke.

Stromate cortice innascens, erumpens, effusa, determinata, saepe disciformis, convexa, impolita, atra. Peritheciis subglobosis, parvulis, 1-2 serialibus, ostiolis externis vix visibilis. Ascis cylindraceis. Sporidiis vere polymorphis, aliis fusiformibus ($\cdot 021 \times \cdot 009$ mm.); aliis ovatis ($\cdot 012 \times \cdot 008$ mm.); aliis intermediis, plerumque magnis, fuscis.

On bark. Clarence River, Australia. (Miss. Thorneton).

Sporidia very variable in form and size, larger than in *N. rumpens*, which it externally somewhat resembles.

27. **Nummularia mauritanica**, Berk. & Cke.

Discoidea, demum confluens irregularisque, erumpens, convexo-applanata, laevis, ater. Ostiolis obsoletis. Peritheciis elongato-compressis. Ascis cylindraceis. Sporidiis ellipticis; utrinque rotundatis, fuscis ($\cdot 008 \times \cdot 004$ mm.).

On bark. Mauritius (No. 16), April 1857.

Habit of *N. exutans*, but sporidia smaller, uniformly obtusely rounded at the ends, whereas in that species they are almond shaped.

31. *Nummularia hypophlæa*, B. & Rav. (1137).

Sporidia ·008 × ·004 mm.

32. *Nummularia testudinea*, Cke.

Suborbicularis, convexa, fusca ; margine tenui, sterili ; superficie demum in plagias minutas hexagonas fissurato-diffracti, plagiis cum peritheciis innatis convenientibus. Peritheciis centraliibus, congestis, globosis. Ascis cylindricis. Sporidiis ellipticis, fuscis (·005 × ·003 mm.).

On bark. West Africa.

34. *Nummularia Phillyreae*, Mont. (1116).

Sporidia ·018 × ·01 mm.

36. *Nummularia scriblita*, Mont. (1405).

Sporidia ·038-·04 × ·012 mm.

37. *Nummularia scutata*, Berk. & Cke.

Tenuis, orbicularis, appanata, atra, erumpens ; ostiolis minutis punctiformibus vix notatis. Ascis cylindraceis. Sporidiis ellipticis, minutissimis, fuscis (·004-·005 × ·0025 mm.).

On branches. Mauritius.

Allied to *N. microplaca*, but thinner, and sporidia smaller.

NUMMULARIA.

SECT. A.—DISC CONCAVE.

1. *Nummularia repanda*, Fr. 1525.
2. " *discreta*, Schw. 1529.
3. " *discincola*, Schw. 1104.
4. " *obularia*, Fr. 1540.
5. " *Baileyi*, B. & Br.
6. " *macrocenangium*, Ces. 1411.
7. " *Moselei*, Berk. 1421.
8. " *lutea*, A. & S. 1528.
9. " *succenturiata*, Tode. 1527.
10. " *gigas*, Plow. 1531.

SECT. B.—DISC CONVEX.

11. *Nummularia Bulliardii*, Tul. 1524.
12. " *constricta*, Fr. 1543.
13. " *repandooides*, Fckl. 1526.
14. " *clypeus*, Schw. 1524.
15. " *glycirrhiza*, B. & C. 1541.
16. " *macula*, Schw.
17. " *regia*, DeNot. 1538.
18. " *mediterranea*, DeNot. 1539.
19. " *anthracodes*, Fr. 1383.
20. " *comedens*, Ces. 1389.

21. *Nummularia dryophila*, *Tul.* 1530.
 22. " *pithodes*, *B. & Br.* 1109.
 23. " *fossulata*, *M.* 1455.
 24. " *microsticta*, *M.* 1415.
 25. " *exutans*, *Cke.* 1105.
 26. " *australis*, *Cke.*
 27. " *mauritanica*, *B. & Cke.*
 28. " *rumpens*, *Cke.* 1140.
 29. " *placenta*, *Kalch.* 1377.
 30. " *microplaca*, *B. & Rav.* 1112.
 31. " *hypophlaea*, *B. & Rav.* 1137.
 32. " *testudinea*, *Cke.*
 33. " *tenuis*, *Pass.* 1537.
 34. " *Phillyreae*, *Mont.* 1116.
 35. " *heterostoma*, *Mont.* 1380.
 36. " *scriblita*, *Mont.* 1405.
 37. " *scutata*, *B. & Cke.*
 38. " *cycliscus*, *Mont.* 1408.
 39. " *melanaspis*, *Mont.* 1419.
 40. " ? *Carabayense*, *Mont.* 1400.
 41. " ? *pachyloma*, *Lev.* 1417.
 42. " ? *sertata*, *DR. & M.* 1372.
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AUSTRALIAN FUNGI.

By M. C. COOKE.

(Concluded from Vol. xi., p. 150.)

Gen. 6. SPHÆROPSIS. *Lev.*

Sphæropsis tricorynes, *B. & Br. Linn. Trans.* II., 68.

On *Tricoryne anceps*. Brisbane, Q.

Gen. 7. GLEOSPORIUM. *Mont.*

Gleosporium cucurbitarum, *B. & Br. Linn. Trans.* II., p. 68.

On gourds. Brisbane, Q.

HYPHOMYCETES.

ORD. I. **ISARIACEI.** *Fr.*

Gen. 1. ISARIA. *Pers.*

Isaria graminiperda, *B. & Mull. Gard. Chron.*, 1873, 596.

Australia Felix.

Isaria fuciformis, *Berk. Linn. Journ.* XIII., 175.

Mt. Gambier.

Isaria radians, Berk. Fl. Tasm. II., 271.
Tasmania.

Gen. 2. CERATIUM. A. & S.

Ceratium hydnoides, A. & S. Consp. t. 2, f. 7.
Rockhampton, Clarence River, Endeavour River.
Ceratium arbuscula, B. & Br. Linn. Journ. XIV., 97.
Queensland.

ORD. II. STILBACEI. Link.

Gen. 1. STILBUM. Tode.

Stilbum erythrocephalum, Ditm. Sturm. Fl. III., t. 45.
W. Australia.

Stilbum cinnabarinum, Mont. Fl. Cub. 308, t. 11, f. 3.
Queensland.

Gen. 2. FUSARIUM. Link.

Fusarium lateritium, Nees, Syst. 31, t. 26.
W. Australia.

Fusarium rubicolor, B. & Br. Linn. Trans. II., 1883, t. xv., f. 10-11.
Queensland.

Gen. 3. ILLOSPORIUM. Mart.

Illosporium flavellum, B. & Br. Linn. Trans., 1883, p. 68.
Queensland.

Gen. 4. MICROCERA. Desm.

Microcera coccophila, Desm. Ann. Sci. Nat., 1848, x., 359.
Queensland.

ORD. III. MUCEDINEI. Fr.

Gen. 1. ASPERGILLUS. Link.

Aspergillus glaucus, Link. Spec. I., 67.
Queensland.

Aspergillus Mulleri, Berk. Linn. Journ. XIII., 175.
Oolongyarra.

Aspergillus mucoroideus, Cooke.

Gregarius. Mycelio albo, intricati-intertexto. Hyphis erectis, hyalinis, continuis, columella magno globoso coronatis, basidüs brevibus, cylindricis. Sporis diu persistentibus, globosis, fuscis, (·004 mm.) concatenatis, capitulo globoso atro formantibus.

On decaying plants. On *Gomphrena*. Arnhem's Land. On leaves ; Johnstone River. (*Berthold.*)

Capituli about ·015 mm. diam. Columella large. Hyphæ without septa. Spores adhering for a long time, so that altogether very liable to be mistaken for a *Mucor*, but the spores are in chains, and wholly external.

Gen. 2. POLYACTIS. *Link.*

Polyactis vulgaris, *Link. Obs. I., p. 14, f. 22.*
Tasmania.

Gen. 3. PENICILLIUM. *Link.*

Penicillium crustaceum, *Fr. Syst. Myc. III., 407.*
Clarendon.

Gen. 4. VERTICILLIUM. *Nees.*

Verticillium eximum, *Berk. Linn. Journ. XIII., 175.*
Paramatta.

Verticillium niveum, *Berk. Fl. Tasm. II., 271.*
Tasmania.

Gen. 5. RHINOTRICHUM. *Corda.*

Rhinotrichum pulchrum, *Berk. Linn. Journ. XIII., 175.*
Wangaratta.

Rhinotrichum microsporum, *Berk. Fl. Tasm. II., 272.*
Tasmania.

Rhinotrichum ramosissimum, *B. & C. North American Fungi, No. 662.*
Clarendon.

Rhinotrichum Carteri, *Cke.*

Album, pezizæforme, subcompactum. Hyphis ramosis, septatis, sursum clavatis, sub-nodulosis. Sporis globosis (.008 mm. diam.), hyalinis, leniter ad basim apiculatis.

Upper Hunter River, N.S.W. (Carter.)

Gen. 6. NEMATOGONUM. *Desm.*

Nematogonium aureum, *Berk. Eng. Fl. v., 340.*
Queensland.

Nematogonium aurantiacum, *Desm. Ann. Sci. Nat., 1834, 70, t. 2, f. 1.*
Australia, in Herb. Berk.

Gen. 7. THOZETIA. *Berk. & Mull.*

Thozetia nivea, *Berk. Linn. Journ. XVIII., 388.*

Gen. 8. OIDIUM. *Link.*

Oidium Tuckeri, *Berk. Moniteur Belge, 1850, IX., 2383.*

Oidium erysiphoides, *Fr. Syst. Myc. III., 432.*

Oidium leucoconium, *Desm. Ann. Sci. Nat., 1829, p. 102.*
Queensland.

ORD. IV. DEMATIEI. *Fr.*Gen. 1. CLADOSPORIUM. *Link.*

Cladosporium herbarum, *Link. Obs. II., 37.*
Queensland, Victoria.

Cladosporium papyricolor, B. & Br. *Linn. Trans.*, 1883, p. 68.
Queensland.

Cladosporium stenosporum, Berk. & Curt. *N. Amer. Fungi No.* 650.
Rockhampton.

Gen. 2. HELMINTHOSPORIUM. Pers.

Helminthosporium Ravenelii, Curt. in *Sill. Journ.*, 1848, 352.
Queensland.

Helminthosporium rhabdiferum, B. & Br. *Ann. Nat. Hist.*, 1865,
No. 1053.
S. Australia.

Gen. 3. PODOSPORIUM. Schwz.

Podosporium grande, Oke.

Atrum, magnum, lanosum, cæspitos densos (1-2 in. long, $\frac{1}{2}$ -1 in. alt.) efformans. Hyphis erectis ($\frac{1}{2}$ in. et ultra), congestis, septatis, atrobrunneis, sporis elongato-clavatis, pluriseptatis (8-11), brunneis ($0\cdot07$ - $0\cdot08 \times 0\cdot01$ mm.).

On stems of *Aster argophillus*. Gipps Land, Australia (Turton).

Forming dense woolly black tufts nearly an inch high. Superficially so much resembling *Antennaria scorpiadea* that it has been sometimes mistaken for that species.

Gen. 4. MYSTROSPORIUM. Corda.

Mystrosporium pulchrum, Berk. *Hook. Journ. Bot.*, 1845, 70.
W. Australia.

Gen. 5. FUSICLADIUM. Bon.

Fusicladium dendriticum, (Wallr.) Fckl. *Symb.* p. 357.
S. Australia.

Fusicladium pyrinum, (Lib.) Fckl. *Symb.* p 357.
S. Australia.

ORD. V. TRICHODERMACEI. Fries.

Gen. 1. PILACRE. Fr.

Pilacre divisa, Berk. *Fl. Tasm.* II., 271.
Tasmania.

Gen. 2. TRICHODERMA. Pers.

Trichoderma viride, Pers. *Syn. Fung.*, 230.
Tasmania. W. Australia. Queensland.
[Conidia of *Hypocrea rufa*.]

Gen. 3. SEPEDONIUM. Link.

Sepedonium chrysospermum, Link. *Sp.*, I., 29.

W. Australia. Queensland. [Conidia of *Hypomyces*.]

Gen. 4. MYROTHECIUM. Tode.

Myrothecium inundatum, Tode. *Meck.* I., 25, t. 5, f. 39.
Clarence River.

ORD. VI. TORULACEI. Fr.

Gen. 1. TORULA. *Link.*

Torula herbarum, *Link. Obs.* I., 19.
Queensland.

Torula pinophila, *Chev. Fl. Par.* I., 34,
Clarendon.

Gen. 2. BISPORA. *Corda.*

Bispora monilioides, *Corda Icon.* I., 9, t. 2, f. 143.

Gen. 3. BACTRIDIUM. *Kunze.*

Bactridium flavum, *Kze. Myk. Hefte*, t. 1, f. 2.
Queensland.

Bactridium magnum, *Cke. Grevillea* VIII., 60.
Dividing Range.

Gen. 4. SPORIDESMIUM. *Link.*

Sporidesmium atrofuscum, *Cooke.*

Effusum, velutinum, atrum. Sporis clavato-elongatis, irregularibus ($0.05\text{--}0.08 \times 0.15\text{--}0.2$ mm.), in cellulis quadratis utrinque divisitis, atro-fuscis.

On wood. Mount William, Victoria.

PHYSOMYCETES. B.

ORD I. MUCORINI. Fr.

Gen. 1. MUCOR. *Mich.*

Mucor cervinoleucus, *Berk. Fl. Tasm.* II., 282.
Tasmania.

Gen. 2. PHYCOMYCES. *Kunze.*

Phycomyces nitens, *Kze. Myk. Hefte.* II., 113.
Broadribb River.

Gen. 3. CIRCINELLA. *Tieg. & Mon.*

Circinella umbellata, *Tieg. & Mon. Am. Sci. Nat.*, 1873, t. 21, f. 18-23. (= *Helicostylum Moreliae*, B. & Br.).
Queensland.

Gen. 5. ENDOGONE. *Link.*

Endogone australis, *Berk. Fl. Tasm.* II., 282.
Tasmania.

ADDENDA.

The following species have been added to the Australian Flora since the publication of this catalogue commenced:—

HYMENOMYCETES. Fr.

Agaricus (Lepiota) rhytipelta, *Muell. Proc. Linn. Soc. N. S. W.*, 1882,
p. 104.
Lake Muir, Mullersville, Western Port.

- Agaricus (Lepiota) mastoideus**, Fr. Hym. Eur., 30.
Gipps Land, Barossa Range.
- Agaricus (Tricholoma) civilis**, Fr. Hym. Eur., 71, Fr. Icon., t. 42, f. 1.
Queensland.
- Agaricus (Clitocybe) rheicolor**, Berk. Ann. Nat. Hist. III., 376.
Queensland.
- Agaricus (Collybia) nivosulus**, Berk. Fungi Cubensis (No. 111.)
Gipps Land.
- Agaricus (Collybia) coagulatus**, B. & Br. Linn. Trans. II., 53.
Queensland.
- Agaricus (Mycena) acutatus**, Kalch. Proc. Linn. Soc. N.S.W., 1882,
p. 104.
Western Port.
- Agaricus (Omphalia) glaucescens**, Kalchb. Proc. Linn. Soc. N.S.W.,
1882, p. 105.
Western Port.
- Agaricus (Pleurotus) salignus**, Fr. Hym. Eur., 174.
Lake Bonney, Gipps Land, Endeavour River, N. S. Wales.
- Agaricus (Pleurotus) ostreatus**, Fr. Hym. Eur., 173.
Illawarra.
- Agaricus (Pleurotus) semiliber**, B. & Br. Linn. Trans. II., 54.
Queensland.
- Agaricus (Pleurotus) mitis**, Pers. Syn., 481.
Port Denison.
- Agaricus (Pholiota) spectabilis**, Fr. Hym. Eur., 221.
N. S. Wales.
- Agaricus (Flammula) Baileyi**, B. & Br. Linn. Trans. II., 54.
Queensland.
- Agaricus (Naucoria) melinoides**, Bull. Champ., t. 560, f. 1.
Queensland.
- Agaricus (Naucoria) cerodes**, Fr. Hym. Eur., p. 257.
Moe Swamp, Gipps Land.
- Agaricus (Galera) peroxydatus**, Berk. Journ. Bot., 1843, p. 511.
Queensland.
- Agaricus (Stropharia) squamosus**, Fr. Hym. Eur., 285.
Clarendon.
- Agaricus (Hypholoma) Candolleanus**, Fr. Hym. Eur., 295.
Daylesford.
- Hygrophorus gilvus**, Kalchb. Proc. Linn. Soc. N. S. W., 1882, p. 105.
Western Port.
- Hygrophorus Lewellinæ**, Kalehb. Proc. Linn. Soc. N. S. W., 1882, p. 105.
- Lactarius piperatus**, Fr. Hym. Eur., p. 430.
Endeavour River.
- Lentinus strigosus**, Fr. Epicr., p. 388.
N. Queensland.
- Lentinus blepharodes**, Berk. & Curt. Fungi Cuba, No. 155.
Port Denison.
- Lentinus Schomburgckii**, Berk. Linn. Trans. xx., 111, t. 9, f. 3.
Daintree River, Port Denison.

Lentinus peliculosus, Fr. Epicr., p. 395.

Richmond River.

Lentinus catervarius, B. & Br. Linn. Trans. II., 55.

Queensland.

Lentinus exasperatus, B. & Br. Linn. Trans. II., 55.

Queensland.

Lentinus punctaticeps, B. & Br. Linn. Trans. II., 55.

Queensland.

Lentinus eugrammus, Mont. Cuba, 414, t. 17, f. 2.

Queensland.

Panus conchatus, Fr. Hym. Eur., 488.

Clarence River.

Panus suborbicularis, B. & Br. Linn. Trans. II., 55.

Queensland.

Xerotus Berterii, Mont. Chil. VII., 353.

Queensland.

Xerotus albidus, B. & Br. Linn. Trans. II., 56.

Queensland.

Xerotus lateritius, B. & C. Journ. Linn. Soc. X., 303.

Queensland.

Lenzites repanda, Fr. Epicr., p. 404.

Queensland, Richmond River, Clarence River, Illawarra.

Lenzites flaccida, Fr. Hym. Eur., 493.

Richmond River.

Boletus haedinus, B. & Br. Linn. Trans. II., 57.

Queensland.

Boletus calopus, Fr. Hym. Eur., 506. Sver. Swamp., t. 69.

Clarence River.

Polyporus (Mesopus) Hartmanni, Cke.

Pileo carnoso, subfragili, saepe dimidiato, leniter velutino, fusco-rubescente, margine pallidiore, plano, vel late umbonato, disco crasso, stipite ventricoso crasso, hinc illic subradicato, sursum rubro velutino, deorsum pallidiore, sub reticulato-tomentoso, poris minimis, rotundis, aequalibus, brevissimis, leniter decurrentibus, pallidis. Sporis minutis, ellipticis, albis.

On the ground. Toorvoomba, Queensland. (Hartmann, No. 10.)

An elegant species approaching *Boletus*, but with a descending trama. Pileus 3 inches diam., stem. $2\frac{1}{2}$ inches long, 1 inch thick. Pileus and stem minutely velvety, wholly rufescent except the pores, which are pallid. The diagnosis is drawn from the dried plant. Unfortunately collectors and colonial correspondents will not be persuaded to send drawings and details with their fleshy fungi, although for many years the Rev. M. J. Berkeley was continually urging it upon them. On account of this not more than one-tenth of the Agaricini and Boleti sent here can be accurately determined.

Polyporus (Mesopus) tomentosus, Fr. Hym. Eur., 530.

Gipps Land, V.

Polyporus (Mesopus) similis, Berk. Hook. Journ., 1843, 635.
Endeavour River, Goode Island.

Polyporus (Mesopus) proteiporus, Cooke.

Fileo albido, e carnoso-lento, coriaceo, convexo-plano, depresso, leniter tomentoso-leproso, demum subglabro, margine integro, vel sublobato, incurvo; stipite brevi concolore; carne pallido; poris angulatis, irregularibus, confluentibus, decurrentibus ($\frac{1}{2}$ -2 mm. diam.) elongatis (5 mm.) pallide umbrinis. Dissepimentis tenuibus, margine laceratis.

On the ground. Torvoomba, Q. (Hartmann.)

Pileus 2-4 in. diam. Stem scarcely an inch long, half an inch thick, dilated upwards. In some respects resembling *P. rufescens* and *P. biennis*, but firmer, belonging rather to the section *Lenti* than *Spongiosi*.

Polyporus (Pleuropus) Strangerii, Muell. Proc. Linn. Soc. N.S.W., 1882, 106.

Riverina.

Polyporus (Pleuropus) nephridius, Berk. Journ. Bot. VIII., 195.
Brisbane, Q.

Polyporus (Pleuropus) vinosus, Berk. Ann. Nat. Hist. II., Vol. IX., 195.
Brisbane, Q.

Polyporus (Pleuropus) Leprieurii, Mont. Syll., 155.
New Guinea.

Polyporus (Pleuropus) Guilfoylei, B. & Br. Linn. Trans. II. 58.
Brisbane, Q.

Polyporus (Pleuropus) mutabilis, Berk. & Curt. Grev. I., 38.
Daintree River.

Polyporus (Pleuropus) brunneolus, Berk. Sill. Journ., 1851, 94.
Daintree River.

Polyporus (Pleuropus) carneo-niger, Berk.

Fileo reniformi, tenui, nigro, radiato-rugoso (2 unc. lat.) obscure zonato. Stipite brevi, elongatove, concolore, deorsum velutino-fusco, ad basim discoideo. Hymenio carneo, poris minutis, brevibus; dissepimentis crassis.

Daintree River.

Polyporus (Pleuropus) dorcadideus, B. & Br. Linn. Trans. II., 57,
t. 10, f. 16.
Brisbane, Q.

Polyporus (Pleuropus) scopulosus, Berk. Hook. Journ., 1852, 143.
Daintree River.

Polyporus (Pleuropus) dictyopus, Mont. Ann. Sci. Nat., 1835, p. 349.
Queensland.

Polyporus (Pleuropus) Boucheanns, Fr. Hym. Eur., 533.
Endeavour River.

Polyporus (Merisma) retiporus, Cooke.

Cæspitoso-multiplex, succoso-caseosus, expallens, ochraceus, siccо fragilis. Fileis latissimis, imbricatis, undulatis, velutino-tomentosis; carne albo; poris angulatis, mediis, brevissimis; dissepimentis obtusis retiformibus.

On trunks. Daintree River.

Resembling *P. sulfureus*, but the pores are three times as large, much shorter, the dissepiments almost venose. It differs also in its velvety surface. Colour uncertain, as no information was sent with the dried specimens.

Polyporus (Merisma) laetus, Cooke.

Imbricato-multiplex, e lento coriaceus, laeticolor. Pileolis dimidiatis, imbricato-concrescentibus, integris, in squamulis adpressis zonato-diffractis, aurantio-rubris, in coccineis purpureisque vergentibus, demum pallescentibus, postice in stipitem inaequalem confluentibus; margine acuto, carne fibroso, aurantio-rubro, tenui (5 mm. crass). Poris mediis, pallidis, acie tenui.

Victoria.

Pilei 3 to 6 inches, or more, broad. Portion only sent without information. Apparently allied to *P. giganteus*.

Polyporus (Merisma) anthracophilus, Cooke.

Imbricato-multiplex, e lento coriaceus, induratus, pileolis dimidiatis, imbricato-concrescentibus, sinuoso-lobatis, sub-tomentosis, demum adpresso-squamosis, badio-fuscis, postice in stipites inaequales albidos attenuatis, ambitu leniter zonatis; poris mediocribus ($\frac{1}{3}$ – $\frac{1}{2}$ mm.) inaequalibus, angulatis, decurrentibus, albis; dissepimentis tenuibus, sub-dentatis.

On charred ground. S. W. Australia. (Muir, 116.) Rockhampton. (Thozet.)

Tufts 6 inches. Pores 1 cm. and upwards long. Becoming very hard when dry.

Polyporus (Merisma) confluens, Fr. Hym. Eur., 539.

Port Denison, Lord Howe's Island.

Polyporus (Anodermei) substuppeus, B. & Cooke Linn. Journ. xv., 381.
Endeavour River.

Polyporus (Placodermei) betulinus, Fr. Hym. Eur., 555.
Queensland.

Polyporus (Placodermei) marginatus, Fr. Hym. Eur., 561.
Victoria. N. S. Wales.

Polyporus (Placodermei), lineato-scaber, B. & Br. Linn. Trans. II., 59, t. 11, f. 1.
Queensland.

Polyporus (Placodermei) obliquus, Berk. in Herb. Kewensis.
Clarence River.

Polyporus (Placodermei) testudo, B. & Br. Linn. Trans. II., 59, t. 10, f. 19.
Brisbane, Q.

Polyporus (Placodermei) dochmius, Berk. & Br. Linn. Journ. XIV., 50.
Daintree River.

Polyporus (Inodermei), anebus, Berk. Hook. Journ., 1847, p. 504.
Brisbane, Q.

Polyporus (Inodermei) cartilagineus, Berk. & Br. Linn. Journ., XIV., 49.
Johnstone River.

Polyporus (Inodermei) velutinus, Fr. Hym. Eur., 568.

Gipps Land, Endeavour River.

Polyporus (Inodermei) trizonatus, Cooke.

Pileo coriaceo, tenui, rigido, ochraceo, appланato, postice convexo, sericeo, zonis tribus elevatis obscurioribus variegato, margine integro, acuto. Poris minimis, rotundis, postice decurrentibus, albis ($\frac{1}{4}$ mm. diam.).

On trunks. Upper Yarra. (Lucas).

Pileus $1\frac{1}{2}$ -2in., somewhat resembling *P. hirsutus* above, but silky and shining, similar also in appearance to some forms of *P. versicolor*, but not at all velvety. Almost uniformly with three elevated, slightly darker zones.

Polyporus (Inodermei) contrarius, B. & Curt. Linn. Trans. II., 60, t. 11, f. 2-4.

Brisbane, Q.

Polyporus (Inodermei) stereoides, Fr. Hym. Eur., 569.

Richmond River, Upper Daintree River.

Polyporus (Inodermei) vellereus, Berk. Journ. Bot., 1842, p 455. Brisbane, Q.

Polyporus (Inodermei) breviporus, Cooke.

Ferrugineus. Pileo membranaceo, rigido, radiato-rugoso, scruposo, conchiformi, vel imbricato, margine crispato. Poris brevissimis, minutis, rotundatis, concoloribus ($\frac{1}{5}$ mm. diam.).

On trunks. Endeavour River.

Pileus very thin, conchate, resembling above a very thin *P. scruposus*, but not thicker than ordinary brown packing paper. Pores shallow, minute, very indistinct.

Polyporus (Inodermei) eriophorus, B. & Br. Linn. Trans. II., 60, t. 11, f. 5, 6.

Brisbane, Q. Illawarra.

This was described as a resupinate species, but it is evidently a resupinate condition of a species of *Inodermei*.

Polyporus (Resupinatus) dictyoporus, Cooke.

Effusus, indeterminatus, tenellus, albus, incrustans, poris effusis, hinc illic centralibus, mediis, æqualibus, subangulatis; dissepimentis tenuibus, brevissimis, venoso-reticulatis, persistenter albis, partibus sterilibus villosis.

On charred wood. Torvoomba, Q.

With some resemblance to *P. terrestris*, but the very shallow pores are persistently white (about $\frac{1}{3}$ mm. diam.).

Polyporus (Resupinatus) contiguus, Fr. Hym. Eur., 571.

Clarendon. Daintree River.

Polyporus (Resupinatus) medulla-panis, Fr. Hym. Eur. p., 579.

Brisbane, Q.

Trametes obstinatus, Cooke.

Pileo coriaceo-lignoso, indurato, tenui, convexo-plano, depresso, pallido subcinereo, velutino, lineato-zonato; margine acuto, integro. Poris e rotundis elongatis ($\frac{1}{2}$ mm. diam.), denticulatis, ligni-coloribus.

On trunks. Endeavour River.

Pileus 2-3 inches broad, 2-3 mm. thick, very rigid, sometimes imbricated, with the habit of *Polyporus versicolor*, but differing in texture, with 2-3 linear reddish or purplish zones. Pores rigid, toothed, often oblique.

Trametes ochroflava, Cooke *Grevillea* ix., p. 12.

Brisbane, Q.

Dædalea incompta, Berk. *Linn. Trans.* II., 61, t. 12, f. 1, 2.

Port Douglas.

Dædalea scalaris, B. & Br. *Linn. Trans.* II., 61, t. 11, f. 7-9.

Brisbane, Q.

Hexagona tenuis, Hook. in *Kunth Synop.*, p. 10.

Queensland.

Laschia cæspitosa, Berk. *Hook. Journ.*, 1854, p. 229.

Queensland.

Merulius Baileyi, B. & Br. *Linn. Trans.* II. 62, t. 13, f. 1.

Queensland.

Merulius tenuissimus, B. & Br. *Linn. Trans.* II., 62.

Queensland.

Hydnnum (Merisma) coralloides, Fr. *Hym. Eur.*, 607.

Illawarra.

Hydnnum (Apus) meruloides, B. & Br. *Linn. Trans.* II., 63, t. 13, f. 4.

Queensland.

Irpex tabacinus, B. & Curt. *North Amer. Fungi*, No. 198.

Queensland.

Irpex gausapatus, B. & Curt. *N. Amer. Fungi* (No. 2922).

Endeavour River.

Radulum molare, Fr. *Hym. Eur.*, 623.

Queensland.

Craterellus cornucopioides, Fr. *Hym. Eur.*, 631.

Queensland.

Thelephora cristata, Fr. *Hym. Eur.*, 637.

Queensland.

Thelephora albo-marginata, Schwein. *Hook. Journ.*, 1847, 324.

N.S. Wales.

Stereum (Pleuropus) spathulatum, Berk. *Hook. Journ.* VIII., p. 274.

Queensland.

Stereum (Merisma) fasciatum, Schwein. *Syn.* p. 106.

Queensland.

Stereum (Merisma) simulans, B. & Br. *Linn. Trans.* p. 64, t. 13, f. 5-15.

Queensland.

Stereum (Merisma) complicatum, Fr. *Epicr.*, 548, *Linn. Trans.* II.,

t. 14, f. 12-14.

Queensland.

Stereum perlatum, Berk. *Hook. Journ.*, 1842, 153.

Port Denison.

Stereum molle, Lev. *Ann. Sci. Nat.*, 1846, 147.

Daintree River.

- Dictyonema membranaceum** (*Ag.*), *Berk. in. Hook. Journ.*, 1851, 16.
Cloudy Mount.
- Sparassis crispa**, *Fr. Hym. Eur.*, 666.
Clarendon.
- Peniophora bambusicola**, *B. & Br. Linn. Trans.* II., p. 64.
Queensland.
- Corticium ? amorphum**, *Pers. Syn.*, 165), *Fries. Hym. Eur.* 648.
Queensland.
- Clavaria grisea**, *Pers. Comm.*, 44. *Fr. Hym. Eur.*, 672.
Gipps Land.
- Clavaria mucida**, *Fr. Hym. Eur.*, 679.
Illawarra.
- Clavaria Kalchbrenneri**, *Muell. Proc. Linn. Soc. N.S.W.*, 1812, p. 105.
Western Port.
- Clavaria lurida**, *Kalchb. Proc. Linn. Soc. N.S.W.*, 1882, p. 105.
Western Port.
- Clavaria portentosa**, *B. & Br. Linn. Trans.* II., p. 65, t. 14, f. 15.
Queensland.
- Clavaria miltina**, *Berk. Hook. Journ.*, 1852, p. 140.
Queensland.
- Clavaria rufa**, *Fl. Dan.*, t. 775, fig. 1.
Queensland.
- Tremella lutescens**, *Fr. Hym. Eur.*, 690.
Queensland.
- Dacrymyces miltinus**, *Berk. (Tremella cinnabarina, Berk.)*, *Fl. Tasm.* II., 263, t. 183, f. 7.
Clarendon, N. S. Wales. Tasmania.
- Dacrymyces stillatus**, *Nees. Syst.*, p. 89, f. 90.
Clarendon, N. S. W.
- Dacrymyces sacchari**, *B. & Br. Linn. Trans.* II., 65.
Queensland.

GASTEROMYCETES.

Gen. 1a. OMPHALOPHALLUS. *Kalch.*

Omphalophallus Mullerianus, *Kalch. Flora*, No. 6, 1883.

Phallus rubicundus (*Bosc.*), *Fr. Sys. Myc.*, II., 284.
Port Phillip.

Scleroderma verrucosum, *Pers. Syn. Fung.*, 154.
Queensland.

Cyathus Novæ Zelandiæ, *Tul. Ann. Sci. Nat.*, 1844, 66, t. 6, f. 1-5.
Upper Hunter River.

Gen. 2a. RHIZOPOGON. *Tul. (Hypogaei)*.

Rhizopogon luteolus, *Fr. in Tul. Hypog.*, p. 81.
Murray River.

ÆCIDIOMYCETES.

Æcidium nymphoidearum, B. & Br. Linn. Trans. II., 67. (*Æ. nymphoides*, D.C. Fl. Fr.)

Brisbane, Q.

Melampsora nesodaphnes, B. & Br. Linn. Trans. II., 67, t. 15, f. 9.
Brisbane, Q.

Ustilago Emodensis, Berk. Hook. Journ., 1851, 202.
Brisbane, Q.

Tilletia epiphylla, B. & Br. Linn. Trans., II., 67.
Brisbane, Q.

Gen. 9. GRAPHIOLA. Poit.

Graphiola phœnicis, Poit. Ann. Sci. Nat., 1824, 473.
On date palm. Brisbane, Q.

DISCOMYCETES.

Peziza (Sepultaria) confusa, Cke. Myco. t. 32, f. 124.
Brisbane.

Peziza (Scutellinia) hirta, Schum. Cke. Myco. t. 33, f. 128.
Gipps Land, V.

Peziza (Scutellinia) coprogena, B. & Br. Linn. Trans. II., p. 69.
Brisbane, Q.

Peziza (Scutellinia) badio-berbis, Berk. Grevillea VIII., p. 137.
Clarendon.

Helotium terrestre, B. & Br. Linn. Trans. II., 69.
Brisbane, Q.

Ascobolus Baileyi, B. & Br. Linn. Trans. II., 69.
On dung. Brisbane, Q.

Patellaria lignyota, Fr. Sys. Myc. II., 150.
Gipps Land, V.

PYRENOMYCETES.

Xylaria (Xyloglossa) cynoglossa, Cooke Grevillea XII., p. 1.
Tweed River. (R. Fitzgerald.)

Hypoxyylon serpens, Fr. Sys. Myc. II., 341.
Queensland.

Nummularia Baileyi, Cooke Grevillea XII., p. 6.
Brisbane, Q.

Meliola mollis, B. & Br. Linn. Journ. XIV., 136.
Queensland.

Meliola corallina, Mont. Fl. Chil. VII., 472.
Queensland.

Meliola Musæ, Mont. Ann. Sci. Nat., 1846, p. 265.
Queensland.

Antennaria semiovata, Berk. Ann. Nat. Hist. II., vol. XIII., p. 468.
Queensland.

Chætomium cymatotrichum, Cooke.

Gregarium. Peritheciis depresso-globosis (·2 mm.) ubique lanosis, olivaceo-fuligineis, ostiolo atro; pilis tenuibus, simplicibus, glabris, intertextis, numerosissimis, gyroso-flexuosis, fuscis. Ascis pyriformibus, sporidiis globosis, ovatisve, leniter utrinque apiculatis, vel obtuso-rotundatis, fuligineis (·01 × ·008 mm.).

On leaves of *Solanum Dallachii*. Johnstone River, N. Queensland (Berthand).

Perithecia, including the hairs, ·04 mm. diam. Hairs waved throughout, from one-fourth to one-third the diameter of the sporidia.

CORRIGENDA.

References to be added to the following species:—

Agaricus (Pleurotus) sordulentus, B. & Br. Linn. Trans. II., 54.

Agaricus (Psalliota) versipes, B. & Br. Linn. Trans. II., 54.

Hygrophorus porphyrius, B. & Br. Linn. Trans. II., 55.

Panus incandescens, B. & Br. Linn. Trans. II., 55.

Panus viscidulus, B. & Br. Linn. Trans. II., 55.

Xerotus proximus, B. & Br. Linn. Trans. II., 56.

Polyporus (Mesopus) dictyopus, Rost. in Sturm. Fl., to be deleted.

Polyporus luxidus, Kalchbr., (p. 24), instead of *Polyporus lividus*, Kalchbr.

Trametes pictus, B. & Br. Linn. Trans. II., 61.

Sistotrema irpicinum, B. & Br. Linn. Trans. II., 63.

Hydnnum meruloides, B. & Br. Linn. Trans. II., 63.

Melampsora phyllodiorum, B. & Br. Linn. Trans. II., 67.

Sphæria polyscia, B. & Br., not *Sphæria polyasca*, B. & Br.

NOTE.—The above Catalogue has been compiled chiefly from descriptions, or determinations, by several mycologists, with no type specimens, in many cases, available for reference. Consequently no attempt has been made at reduction, although confident that species have been introduced which cannot be maintained as distinct from species previously described. Different authors will naturally hold different views as to the limits of species in proportion to their knowledge and experience of exotic forms, and their tendencies to variation under varied conditions. We make these observations in order to prevent any misconception that we are prepared to adopt all the names quoted in the list.

August, 1883.

M. C. C.

NEW AMERICAN FUNGI.

By M. C. COOKE.

Chiefly consisting of diagnoses of the species published in Ravenel's North American Fungi.

PYRENOMYCETES IMPERFECTÆ.

Leptostroma micropuncta, Cooke in Rav. Amer. Fungi, No. 527.

Gregaria. Peritheciis minutissimis, applanatis, atris, maculis suborbicularibus efformantibus. Sporis linearibus, hyalinis, utrinque obtusis ($\cdot006 \times \cdot0015$ mm.).

On Sabal. S. Carolina (Rav., 2848).

Leptostroma confluens, Cooke in Rav. Amer. Fungi, No. 530.

Peritheciis orbicularibus, applanatis, atris, demum confluentibus, in plagiis irregularibus aggregatis. Sporis ellipticis, hyalinis, ($\cdot004 \times \cdot002$ mm.).

On bark of *Pinus*, S. Carolina (Rav., 2337).

Coniothyrium callicarpæ, Cooke in Rav. Amer. Fungi, No. 503.

Sparsum, tectum, demum cortice fissurato erumpens. Peritheciis atris, subdepressis. Sporis globosis, pallide fuscis ($\cdot004$ mm. diam.).

On branches of *Callicarpa* (Rav., 2711). S. Carolina.

Phoma musarum, Cooke in Rav. Amer. Fungi, No. 692.

Minutum, sparsum, punctiforme. Peritheciis subglobosis, atris, epidermide tenui tectis. Sporis elliptico-elongatis ($\cdot01 \times \cdot003$ mm.).

On petioles of *Musa*, (Rav., 3182). Georgia, U.S.

Phoma atomæsporum, Cooke in Rav. Amer. Fungi, No. 541.

Sparsum, prominulum, atrum. Peritheciis subglobosis, poro pertusis. Sporis minutissimis, profusis, hyalinis, ovato-ellipticis, ($\cdot003 \times \cdot0015$ mm.).

On petioles and midribs of *Magnolia* (Rav., 2656 B). S. Carolina.

Sphaeropsis filamentosa, Cooke in Rav. Amer. Fungi, No. 545.

Sparsa, punctiformis. Peritheciis subglobosis, atris, cuticulâ hyalinâ tectis. Sporis cylindricis, utrinque obtusis, hyalinis, ($\cdot018\text{--}02 \times \cdot003\text{--}004$ mm.).

On *Yucca filamentosa*, (Rav., 3089). S. Carolina.

Sphaeropsis viticolum, Cooke in Rav. Amer. Fungi, No. 542.

Foliola, gregaria. Peritheciis subglobosis, demum centro depresso, fuscis. Sporis sublanceolatis, rectis, curvulisve, hyalinis, ($\cdot02\text{--}024 \times \cdot005\text{--}0065$ mm.).

On leaves of *Vitis*, (Rav., 2933). South Carolina, U.S..

Sphaeropsis tertium, Cooke.

Sparsum vel subgregarium, punctiforme. Peritheciis depresso, minimis, atris, cuticulâ tectis. Sporis elongato-ellipticis, utrinque obtusis, hyalinis ($\cdot018 \times \cdot0035\text{--}004$ mm.).

On branches of *Ailanthus*, (Rav., 2712). S. Carolina.

Sphaeropsis Ricini, Cooke in Rav. Amer. Fungi, No. 543.

Caulicolum, sparsum. Peritheciis atris, subglobosis, demum depresso, poro pertusis. Sporis elongato-ellipticis, hyalinis, ($\cdot02 \times \cdot005$ mm.).

On stems of *Ricinus communis* (Rav., 2630). S. Carolina.

Sphaeropsis Sacchari, Cooke in Rav. Amer. Fungi, No. 693.

Sparsam, vel in plagias irregulares consociatum. Peritheciis atris, subglobosis, erumpentibus. Sporis lanceolatis, hyalinis, ($\cdot032 \times \cdot042 \times \cdot012$ mm.).

On culms of *Saccharum officinarum*, (Rav., 3173). Darien, Georgia.

Sphaeropsis gladioli, Cooke.

Foliicolum, in maculas pallidos gregarium. Peritheciis minimis, subglobosis, atris; sporis elongato-ellipticis, hyalinis, ($\cdot02 \times \cdot005$ mm.).

On leaves of *Gladiolus* (Rav., 2956). S. Carolina, U.S.

Discella quericina, Cooke in Rav. Amer. Fungi, No. 555.

Sparsa, erumpens, discoidea, primo cortice tecta, demum laciniato-fissurato. Disco atro. Sporis elongato-ellipticis, hyalinis, ($\cdot015 \times \cdot004$ mm.).

On bark of *Quercus aquatica* (Rav., 2857). S. Carolina.

Discella citri, Cooke.

Sparsa, rotundata, elliptica, vel elongata, fusca, primo epidermide tecta, demum lacerata. Sporis elongato-ellipticis, hyalinis, ($\cdot016 \times \cdot017 \times \cdot0045$ mm.).

On twigs of *Citrus* (Rav., 2521).

Diplodia rosæcarpa, Cooke in Rav. Amer. Fungi, No. 550.

Sparsa. Peritheciis demum erumpentibus, subglobosis, atris, obtusis. Sporis ellipticis, uniseptatis, fuscis, ad medio constrictis, ($\cdot02 \times \cdot01$ mm.).

On fruits of *Rosa* (Rav., 2811). S. Carolina, U.S.

Diplodia Phoradendri, Cooke in Rav. Amer. Fungi, No. 549.

Sparsa, prominula. Peritheciis globosis, atris, demum superne nudis. Sporis magnis, ellipticis, uniseptatis, fuscis, ad medio constrictis ($\cdot032 \times \cdot02$ mm.).

On *Phoradendron* (Rav., 3042). Seaboard of S. Carolina.

Allied to *Diplodia compressa*, but distinct.

Diplodia Euonymi, Westd. Rav. in Amer. Fungi, No. 548.

Sporis ($\cdot022 \times \cdot024 \times \cdot008$ mm.).

On *Euonymus Europaeus*, (Rav., 2918). S. Carolina.

SPHÆRELLOPSIS, Cooke.

Perithecia erumpens, vel subsuperficialis, membranacea. Sporis uniseptatis, hyalinis.

Sphærellopsis quercuum, Cooke.

Hypophylla, sparsa. Peritheciis subglobosis, subsuperficialis, mimimis ($\cdot15$ mm. diam.) fuscis. Sporis lanceolatis, uniseptatis, hyalinis ($\cdot016 \times \cdot004$ mm.).

On leaves of *Quercus virens*. Darien, Georgia (Rav., 2500 bis.)

Hendersonia Wistariæ, Cooke in Rav. Amer. Fungi, 782.

Sparsa, tecta, dein erumpens. Peritheciis subglobosis vel depressis, atrofuscis. Sporis lanceolatis, triseptatis, fuscis, ($\cdot01 \times \cdot003$ mm.).

On branches of *Wistaria sinensis* (Rav., 2617). S. Carolina.

Hendersonia Musæ, Cooke in Rav. Amer. Fungi, No. 781.

Sparsa, tecta, punctiformis. Peritheciis parvulis, subglobosis, fuscis. Sporis lanceolatis, triseptatis, hyalinis, ($\cdot012 \times \cdot004$ mm.).

On *Banana* (Rav., 3369). Darien, Georgia.

Pleococcum pezizoideum, Cooke in Rav. Amer. Fungi, No. 699.

Sparsum, atrum, cupulaeformis, erumpens, margine subintegro, disco cinereo. Sporophoris simplicibus, subrectis. Sporis linearibus, obtusis, hyalinis, ($\cdot007 \times \cdot002$ mm.).

On leaves of *Lathyrus* (Rav., 3322). S. Carolina, U.S.

Pestalozzia Cryptomeriæ, Cooke in Rav. Amer. Fungi, No. 554.

Foliicola, sparsa. Peritheciis tenuibus, subprominulis, convexis; sporis lanceolatis, longe stipitatis, triciliatis, trilocularibus, fuscis, utrinque hyalino-apiculatis ($\cdot012 \times \cdot0035$ mm.).

On *Cryptomeria*, (Rav., 2614). S. Carolina.

Spores smaller than in *P. funerea*.

Vermicularia polytricha, Cooke in Rav. Amer. Fungi, No. 532.

Erumpens, cupulaeformis, strigosa, atra. Setis dense congestis, erectis, rigidis, subulatis, glabris, atrofuscis. Sporis lanceolatis, lunatis, nucleatis, hyalinis, ($\cdot03 \times \cdot004$ mm.).

On Lima bean, (Rav., 2988). S. Carolina.

Chætophoma sabal, Cooke in Rav. Amer. Fungi, No. 535.

Sparsa, fusca, velutina. Hyphis conidiisque ut in *Macrosporio*. Peritheciis subglobosis, membranaceis, fuscis ($\cdot1$ mm. diam.). Sporis ellipticis, hyalinis ($\cdot004 \times \cdot0015$ mm.).

On Sabal, (Rav., 2847). S. Carolina.

Chætophoma myriospora, Cooke in Rav. Amer. Fungi, No. 537.

Sparsa, fusca. Hyphis erectis, simplicibus, septatis. Conidiis macrosporoideis, clavatis ($\cdot04 \times \cdot013$ mm.). Peritheciis globoso-depressis, minimis ($\cdot05$ mm. diam.) membranaceis. Sporis ellipticis, hyalinis, minutis ($\cdot003 \times \cdot001$ mm.).

On stems of *Delphinium*, (Rav., 2669). S. Carolina.

Chætophoma Musæ, Cooke in Rav. Amer. Fungi, No. 536.

Effusa, atro-fusca, pannosa. Hyphis intertextis, clado-sporoideis (*Cladosporium pannosum*, Cooke). Peritheciis globoso-depressis, membranaceis, fuscis ($\cdot08$ mm. diam.). Sporis ellipticis, hyalinis ($\cdot004 \times \cdot002$ mm.).

On *Musa*, (Rav., 3056). S. Carolina.

Asteroma cerasi, Cooke in Rav. Amer. Fungi, No. 521.

Hypophylla. Maculis orbicularibus, radiantibus, atris. Peritheciis parvulis, applanatis, mycelio fusco insidentibus. Sporis ovalibus, continuis, hyalinis ($\cdot004 \times \cdot002$ mm.).

On leaves of *Cerasus Carolinensis*, (Rav., 2766). S. Carolina.

Asteroma Liriodendri, Cooke in Rav. Amer. Fungi, No. 522.

Amphigena. Maculis parvulis, suborbicularibus, fuligineis. Peritheciis convexis, atris. Sporis minutissimis, ovalibus, hyalinis ($\cdot0015 \times \cdot001$ mm.).

On leaves of *Liriodendron*, (Rav., 2859). S. Carolina.

Asteroma tinctoria, Cooke in Rav. Amer. Fungi, No. 523.

Epiphylla. Maculis suborbicularibus, atro-cinereis. Peritheciis irregularibus, applanatis, ($\cdot1$ mm. diam.) atris. Sporis ovato-ellipticis, hyalinis ($\cdot002 \times \cdot001$ mm.).

On leaves of *Quercus tinctoria*, (Rav., 2765). S. Carolina.

Leptothyrium cinctum, Cooke in Rav. Amer. Fungi, No. 517.

Hypophyllum. Peritheciis subangulatis, minutis, applanatis, fuscis, circiter annulo pallescente cinctis. Sporis ovalibus, hyalinis ($\cdot005 \times \cdot0025$ mm.).

On leaves of *Cerasus serotina*, (Rav., 3126). S. Carolina.

Leptothyrium rosarum, Cooke in Rav. Amer. Fungi, No. 518.

Hypophyllum. Peritheciis discoideis, applanatis, atris, hinc illic aggregatis. Sporis ovato-ellipticis, hyalinis ($\cdot0035 \times \cdot002$ mm.).

On Rose leaves, (Rav., 2705). S. Carolina.

Cheilaria Crataegi, Cooke in Rav. Amer. Fungi, No. 516.

Hypophylla. Peritheciis sparsis, minutissimis, applanatis, superne in lacinias 3-4 apertis. Sporis ovalibus, hyalinis, ($\cdot003 \times \cdot0015$ mm.).

On leaves of *Crataegus*. (Rav., 2730, 2682.) S. Carolina.

Septoria dryina, Cooke in Rav. Amer. Fungi, No. 783.

Amphigena. Maculis orbicularibus, albis, minimis, rubrocinctis. Peritheciis paucis, punctiformibus, atris. Sporis linearibus, curvulis, nucleolis repletis, hyalinis ($\cdot05\cdot06 \times \cdot0015$ mm.).

On leaves of *Quercus falcata*. (Rav., 3326.) S. Carolina.

Septoria Solidaginis, Cooke in Rav. Amer. Fungi, No. 784.

Amphigena. Maculis-rubro-purpureis, irregularibus. Peritheciis sparsis, minutis. Sporis linearibus, flexuosis, nucleolis repletis, hyalinis ($\cdot05 \times \cdot001$ mm.).

On leaves of *Solidago odora*. (Rav., 3338.) S. Carolina.

Septoria albopunctata, Cooke in Rav. Amer. Fungi, No. 510.

Epiphylla. Maculis punctiformibus, albis, purpureo-cinctis; Peritheciis 1-2 centro maculae insidentibus. Sporis linearibus, nucleatis, hyalinis ($\cdot06\cdot07 \times \cdot002$ mm.).

On leaves of *Vaccinium arboreum*. (Rav., 2618.) S. Carolina.

Septoria gossypina, Cooke in Rav. Amer. Fungi, No. 509.

Epiphylla. Maculis albidis, irregularibus, purpureo-cinctis. Peritheciis punctiformibus, centralibus, atris, semi-innatis. Sporis linearibus, hyalinis ($\cdot05 \times \cdot001$ mm.).

On leaves of *Gossypium*. (Rav., 2698). S. Carolina.

Phyllostica Phytolaccæ, Cooke in Rav. Amer. Fungi, No. 514.

Epiphylla. Maculis orbicularibus fuscis. Peritheciis minutis, semi-innatis, fuscis. Sporis breviter linearibus, obtusis, hyalinis, rectis ($\cdot008 \times \cdot0015$ mm.).

On leaves of *Phytolacca*. (Rav., 2661.) S. Carolina.

Phyllosticta Nyssæ, Cooke in Rav., Amer. Fungi, No. 798.

Epiphylla. Macculis pallidis, irregularibus, magnis, purpureo-cinctis. Peritheciis minutissimis, punctiformibus, atris. Sporis subellipticis, hyalinis ($\cdot0035 \times \cdot0015$ mm.).

On leaves of *Nyssa capitata*. (Rav., 3386). Darien, Georgia.

Phyllosticta Bauhiniae, Cooke.

Epiphylla. Maculis irregularibus, fuscis. Peritheciis minutis, sparsis, punctiformibus, atris. Sporis ellipticis, hyalinis, ($\cdot0075 \times \cdot002$ mm.).

On leaves of *Bauhinia*. Caraccas, Venezuela.

Phyllosticta sassafras, Cooke in Rav. Amer. Fungi, No. 515.

Epiphylla. Maculis orbicularibus, fuscis. Peritheciis numerosis, quandoque circinatis, sparsisve, atris (1 mm.). Sporis elliptico-lanceolatis ($\cdot007 \times \cdot0015$ mm.), hyalinis.

On leaves of *Sassafras officinale*. (Rav., 2767, 2672.) S. Carolina.

Phyllosticta Lirioidendri, Cooke.

Epiphylla. Maculis orbicularibus, fuscis, albescensibus, fusco-limitatis. Peritheciis pancis, punctiformibus, centro congregatis, atris. Sporis ellipticis, hyalinis, ($\cdot006 \times \cdot002$ mm.).

On leaves of *Liriodendron*. (Rav., 2917.) S. Carolina.

Phyllosticta pyrorum, Cooke in Rav. Amer. Fungi, No. 512.

Epiphylla. Maculis dealbatis, magnis, semi vel totam paginam occupantibus, lineâ purpureâ determinatis. Peritheciis sparsis, convexis, atris. Sporis linearibus, rectis vel subcurvulis, hyalinis ($\cdot01 \times \cdot002$ mm.).

On pear leaves. (Rav., 2710.) S. Carolina.

Phyllosticta serotina, Cooke in Rav. Amer. Fungi, No. 513.

Amphigena. Maculis orbicularibus, fuscis, lineâ obscuriore limitatis. Peritheciis sparsis, punctiformibus, minutis. Sporis elliptico-lanceolatis, hyalinis ($\cdot012 \times \cdot003$ mm.).

On leaves of *Cerasus serotina*. (Rav., 3108.) S. Carolina.

Glæosporium Hamamelidis, Cooke in Rav. Amer. Fungi, No. 511.

Amphigenum. Maculis suborbicularibus, (1 cm. lat.) atro-fuligineis, hinc illuc pertusis. Sporis subellipticis, obtusis, rectis, vel leniter curvulis, hyalinis, ($\cdot01 \times \cdot0025-\cdot003$ mm.).

On leaves of *Hamamelis Virginica*. (Rav., 2734.) S. Carolina.

Glæosporium aceris, Cooke in Rav. Amer. Fungi, No. 525.

Hypophyllum. Maculis irregularibus, cinereo-fuligineis, sparse pertusis. Sporis ($\cdot018 \times \cdot005$ mm.), ellipticis, obtusis, rectis flexuosivis, hyalinis.

On leaves of *Acer rubrum*. (Rav., 2731.) S. Carolina.

HYPHOMYCETES.

Tubercularia ailanthi, Cooke in Rav. Amer. Fungi, No. 288.

Atra, nitida, globosa, breviter stipitata, erumpens. Hyphis elongatis, tenuissimis, curvulis, ramulosis, compactis. Sporis cylindraceis, obtusis ($\cdot01 \times \cdot001$ mm.) hyalinis.

On branches of *Ailanthus glandulosa* (Rav., 2283). S. Carolina.

Undoubtedly the stroma of a *Nectria*, which surrounded some of the pustules, but too immature for determination.

Oidium pulvinatum, Cooke in Rav. Amer. Fungi, No. 770.

Hypophylla. Fasciculae gregariae maculas indeterminatas effor- mantes. Hyphis abbreviatis, simplicibus, continuis, in pulvinulos convexos congestis. Sporis ellipticis, hyalinis, concatenatis ($\cdot 01\text{--}\cdot 012 \times \cdot 005$ mm.).

On green leaves of *Carya tomentosa* (Rav., 3319). S. Carolina.

Ramularia crypta, Cooke in Rav. Amer. Fungi, No. 581.

Hypophylla, tomento foliorum tecta. Hyphis crassis, simpli- cibus, abbreviatis. Sporis cylindraceis, utrinque obtusis, rectis vel leniter curvulis, hyalinis ($\cdot 025\text{--}03 \times \cdot 006$ mm.).

On leaves of *Quercus falcata* (Rav., 3125).

Trichothecium griseum, Cooke in Rav. Amer. Fungi, No. 580. Pyricu- laria grisea, Sacc. Mich. II., 148.

On leaves of grasses (Rav., 2637).

Described as having the spores solitary at the apices of the threads, but, unless we are greatly mistaken, several grow together, as indicated by the short papillæ at the apex of the thread.

Botrytis elegantula, Cooke in Rav. Amer. Fungi, No. 573.

Fusca, lanosa. Hyphis erectis, septatis, bi-tri-furcatis, apicibus ramulorum sporiferis, fuscis. Sporis subglobosis, in simul 2-3 ($\cdot 005 \times \cdot 0045$ mm.).

On rotting grass (Rav., 2944). S. Carolina.

Botrytis nivosa, Cooke.

Nivosa, cæspitosa. Hyphis tenuibus, abbreviatis, ramosis, sep- tatis, ramulis sursum fastigiato-divisis. Sporis ellipticis, hyalinis, ($\cdot 004 \times \cdot 002$ mm.), ad apicem congregatis.

On sweet potato. S. Carolina.

Botrytis sphagnorum, Cooke in Rav. Amer. Fungi, No. 572.

Nivea, lanosa, cæspitosa. Hyphis sterilibus elongatis, intertextis, furcatis, parce septatis, hyphis fertilibus abbreviatis, sursum bi-vel tri-dichotomis, ramulis fastigiatis, abbreviatis. Sporis subglobosis, minutis, paucis, hyalinis ($\cdot 003$ mm.).

On *Sphagnum* (Rav., 2985).

Threads and spores about the same diameter.

Rhopalomyces cervinum, Cooke in Rav. Amer. Fungi, No. 574.

Effusum, indeterminatum, cervinum. Hyphis repentibus, ramulis assurgentibus, septatis, globoso-capitatis. Capitulis spiculiferis ($\cdot 05$ mm.). Sporis ellipticis, hyalinis, ad spiculis solitariis ($\cdot 008 \times \cdot 004$ mm.).

On cow dung (Rav., 3142).

Rhinotrichum corticioides, Cooke in Rav. Amer. Fungi, No. 575.

Effusum, compactum, pallidum, corticiforme, demum fissuratum. Hyphis repentibus, ramosis; ramulis assurgentibus, crassioribus, moniliformibus, constrictis, cellulis ultimis penultimisque spiculosis, aurantio-fulvis. Sporis ellipticis, profusis, laevibus, concoloribus, ($\cdot 012\text{--}014 \times \cdot 0065\text{--}007$ mm.).

On charred pine logs (Rav., 2835). S. Carolina.

Myxormia hypospila, Cooke in *Rav. Amer. Fungi*, No. 556.

Hypophylla, *Hypospilam* simulans. Receptaculis ellipticis, cinereis, stellato vel dentato-apertis, cupulæformibus, disco nigro. Sporis concatenatis, ovalibus, hyalinis ($\cdot 005 \times \cdot 003$ mm.).

On leaves of *Diospyros virginica* (Rav., 2764).

Epicoccum maculatum, Cooke in *Rav. Amer. Fungi*, No. 774.

Hypophyllum. Maculis orbicularibus fuscis. Stromaticis globo-so-depressis ($\cdot 06$ mm. diam.). Sporis globosis, lævibus, fuscis, ($\cdot 0065$ mm. diam.).

On dead leaves (Rav., 3387). Darien, Georgia.

Seated on definite orbicular spots, so as to resemble a *Sphæria* at first sight.

Torula fusoidea, Cooke & Hark.

Pulvinata, atra, pulverulenta. Sporis fusoideis, in catenis erectis simplicibus conjunctis, pallide fuligineis ($\cdot 013 \times \cdot 003$ mm.).

On *Gynerium argenteum* (Harkness, 2136). California.

Sporidesmium fumago, Cooke in *Rav. Amer. Fungi*, No. 563, 564.

Epiphyllum, atrum, effusum, indeterminatum. Hyphis repentibus, nodulosis. Sporis sub-ellipticis, angulatis, difformibusque, cellulosis, quandoque 3-4 concatenatis, ad basim breviter stipitatis, atrofuscis ($\cdot 02 \times \cdot 015$ mm.).

On leaves of *Cratægus* (Rav., 2681). On pear (Rav., 3082).

On *Helianthus* (Rav., 2622). On *Euonymus* (Rav., 2932). S. Carolina.

Very variable both in size and form, but the above appears to be the most highly developed condition.

Sporidesmium culmigenum, Cooke in *Rav. Amer. Fungi*, No. 561.

Atrum, effusum, indeterminatum. Sporis breviter stipitatis, elliptico-globosis, angularibusque, concatenatis, cellulosis, atrofuscis ($\cdot 03 \times \cdot 02$ mm.).

On *Sorghum* (Rav., 3001, 3004).

Spores less opaque than in *S. polymorphum*, and larger than in *S. melanopum*.

Sporidesmium herbarum, Cooke.

Atrum, effusum, indeterminatum. Sporis sessilibus, elongato-ellipticis, cellulosis, quandoque concatenatis, atris ($\cdot 03 \times \cdot 015$ mm.).

On tomato stems (Rav., 2941).

Cells of spores rather large.

Sporidesmium ellipticum, Cooke in *Rav. Amer. Fungi*, No. 562.

Atrum, circiter pustulas *Diatrypeis conspersum*. Sporis ellipticis, truncatis, multi-cellulosis, leniter constrictis, atris, quandoque 2-3 concatenatis ($\cdot 05 \times \cdot 03$ mm.).

Around pustules of *Diatrype disciformis*. On *Magnolia* (Rav., 2904). S. Carolina.

Clasterisporium strumorum, Cooke. *Sporidesmium strumorum*, Cooke in *Rav. Amer. Fungi*, No. 336.

Atrum, in strumas corticarum innascens. Hyphis tenuibus, repentibus, ramulosis. Sporis erectis, sessilibus, cylindraceis, multi-

septatis, constrictis, plerumque ad apicem hyalino-apiculatis ($\cdot 1 \times \cdot 01$ mm.).

On living oak branches (Rav., 127). Florida.

Having the appearance of *Dichæna strumorum*.

Helminthosporium parvulum, Cooke in Rav. Amer. Fungi, No. 613.

Tenue effusum, atro-fuscum. Hyphis simplicibus, tenuissimis, septatis, erectis, flexuosis vel subrigidis ($\cdot 08\text{--}1$ mm. long). Sporis inspersis, cylindricis, obtusis, 1-2 septatis, rectis, fuscis ($\cdot 01\text{--}017 \times \cdot 0035$ mm.).

On denuded branches. New England (5866). On *Vaccinium arboreum* (4806), and upon *Gynérium argenteum*. Rav. Amer. Fungi, No. 613.

No feature present to distinguish the form on the grass from those growing on branches. A very thin and delicate species.

Helminthosporium asterinum, Cooke.

Maculiforme, asteroideum, atrum. Floccis erectis, simplicibus, rigidulis, subflexuosis, septatis, fuscis ($\cdot 006\text{--}007$ mm. diam.). Sporis obclavatis, superne rotundatis, deorsum truncatis, 7-8 septatis, fuscis ($\cdot 09\text{--}11 \times \cdot 015\text{--}017$ mm.).

On *Liquidambær*. Florida, S. Carolina (1541).

There is not the slightest doubt that the specimens in Rav. Fung. Amer., No. 163, described in "Grevillea," vol. vi, p. 141, were quite immature, and that the description, as amended above, applies to the mature plant. Having now seen many gradations, we are convinced of the identity of the above. The peculiar habit remains the same, the chief difference is in the increase in size of the spores.

Helminthosporium lanceolatum, Cooke in Rav. Amer. Fungi, No. 614.

Effusum, atrum. Hyphis simplicibus, erectis, flexuosis, pluriseptatis, subfasciculatis, atrofuscis. Sporis lanceolatis, sursum longe cuspidatis, hyalino-fuscis, deorsum truncatis, multiseptatis, ($1\cdot15 \times \cdot008\text{--}01$ mm.).

On bark of *Berchemia* (Rav., 2910). S. Carolina.

Threads about half the diameter of those in *Helm. caudatum*, B. & C.

Helminthosporium minus, Schwz.

According to an authentic specimen this is only a dwarf variety of *Helm. macrocarpum*.

Helminthosporium dubium, Schwz.

No appreciable difference between this and *Helm. caudatum*, B. & C., according to original specimen from Schweinitz.

Helminthosporium brassicæcola, Schwz.

The only authentic specimen we have seen consists of the spores of *Helm. foliculatum*, Corda.

Helminthosporium crustosum, Schwz.

Has a compact crustaceous black stroma, from which arise short slender threads; but no spores could be detected in the original specimen. It is probably a distinct species, in so far as the peculiar stroma is concerned.

Triposporium Ravenelii (*Farlow*), *Cooke in Rav. Amer. Fungi*, No. 778.
 Effusum, atrum, parasitans (?). Hyphis algarum immixtum. Sporis triradiatis, septatis, fuscis, ad apicem hyalinis, inspersis (radiis .012 mm. longis, biseptatis). *Asterosporium Ravenelii*, *Farlow MS.*

On bark of *Platanus*, mixed with alga threads (Rav., 3050).

Trichaegum culmorum, *Cooke*.

Effusum, indeterminatum, atrofuscum. Hyphis fascienlatis, breviter septatis, simplicibus, fuscis. Sporis subglobosis, radiato-septatis, atris, laevibus (.02 mm. diam.).

On wheat straw (Dr. Harkness, 996). California.

Spores with 5-6 cells.

Cercospora Berkeleyi, *Cooke* (*HELMINTHOSPORIUM OLIVACEUM*, *B. & C. North Amer. Fungi*) *Rav. Amer. Fungi*, No. 594; *HELMINTHOSPORIUM PISTILLARE*, *Rav. Amer. Fungi*, No. 777.

Sporis clavato-attenuatis (.08-.12 × .005 mm.).

On leaves of *Gleditschia triacanthos* (Rav., 2701). Rav. North Amer. Fungi Exs., No. 594. S. Carolina.

On leaves of *Tetranthera geniculata* (Rav., 3360). Darien, Georgia.

Cercospora nigricans, *Cooke*.

Epiphylla. Maculis effusis, irregularibus, atro-fuligineis. Hyphis fasciculatis, brevibus, fuscis. Sporis cylindraceis, vel superne leniter attenuatis, 3-5 septatis, hyalinis (.05-.06 × .002 mm.).

On leaves of *Cassia obtusifolia* (Rav., 4023). S. Carolina.

Cercospora phaseolorum, *Cooke in Rav. Amer. Fungi*, No. 584.

Epiphylla. Maculis pallidis, vix determinatis. Hyphis fasciculatis, abbreviatis, pallide fuligineis. Sporis subcylindricis, terebribus, 3-5 septatis, pallidis (.04-.05 × .004 mm.).

On leaves of *Phaseolus* (Rav., 2692). S. Carolina.

Spores not half as long as in *Cercospora olivascens*, Sacc.

Cercospora pustula, *Cooke in Rav. Amer. Fungi*, No. 779.

Hypophylla. Maculis orbicularibus, pustulaformibus, atrofuscis. Hyphis paucis, fasciculatis, fuscis. Sporis flexuosis, superne attenuatis, nucleatis (.07 × .003 mm.) hyalinis.

On leaves of *Ampelopsis* (Rav., 3378). Darien, Georgia.

Cercospora Xanthoxyli, *Cooke in Rav. Amer. Fungi*, No. 780.

Epiphylla. Maculis irregulariter ellipticis, pallidis, determinatis. Hyphis brevissimis, dense fasciculatis, fuscis. Sporis cylindraceis, 1-3 septatis, hyalinis (.025-.03 × .003 mm.).

On leaves of *Xanthoxylon Carolinense* (Rav., 2362). Darien, Georgia.

Cercospora Chenopodii, *Fresenius. Rav. N. Amer. Fungi*, No. 591.

On stems of *Chenopodium album* (Rav., 2935). S. Carolina.

Cercospora moricola, *Cooke in Rav. Amer. Fungi*, No. 587.

Hypophylla. Maculis orbicularibus, rubro-fuscis. Hyphis fasciculatis, abbreviatis, olivaceis. Sporis superne attenuatis 3-4 septatis, hyalinis (.07 × .003 mm.).

On leaves of *Morus* (Rav., 2679). S. Carolina. Clevedon, England.

Cercospora crotonifolia, Cooke in *Rav. Amer. Fungi*, No. 593.

Epiphylla. Maculis orbicularibus, albidis; hyphis abbreviatis, vel obsoletis, subfasciculatis. Sporis cylindraceis, rectis, obtusiusculis, 1-3 septatis, hyalinis ($\cdot028\cdot04 \times \cdot003$ mm.).

On leaves of *Croton glandulosum* (Rav., 2697). S. Carolina.

Cercospora gossypina, Cooke in *Rav. Amer. Fungi*, No. 583.

Epiphylla. Maculis effusis, indeterminatis, fuscis. Hyphis subfasciculatis, elongatis, flexuosis, fuscis ($\cdot12\cdot15$ mm.). Sporis elongatis, superne attenuatis, flexuosis, 5-7 septatis, hyalinis ($\cdot07\cdot1 \times \cdot003$ mm.).

On leaves of *Gossypium* (Rav., 2699). S. Carolina.

Cercospora citrullina, Cooke in *Rav. Amer. Fungi*, No. 589.

Epiphylla. Maculis orbicularibus, albidis, purpureo-cinctis. Hyphis elongatis, teretibus, pallide olivaceis. Sporis longissimis, superne attenuatis, parce septatis, hyalinis ($\cdot12\cdot14 \times \cdot003$ mm.).

On leaves of Water Melon (Rav., 3101). S. Carolina.

Cercospora Diospyri, (Thumen). Cooke in *Rav. Amer. Fungi*, No. 588.

Hypophylla. Maculis indeterminatis pallide fuligineis. Hyphis fasciculatis, flexuosis, olivaceis. Sporis obclavatis, 4-7 septatis, cellulis abbreviatis, ad dissepimentis constrictis, hyalinis ($\cdot03\cdot045 \times \cdot004$ mm.).

On leaves of *Diospyros* (Rav., 2659). S. Carolina.

Cercospora sparsa, Cooke in *Rav. Amer. Fungi*, No. 590.

Hypophylla. Maculis indeterminatis, fuscis. Hyphis sparsis, abbreviatis. Sporis superne attenuatis, 2-3 septatis, hyalinis ($\cdot05\cdot07 \times \cdot003$ mm.).

On leaves of *Kalmia latifolia* (Rav., 2743). S. Carolina.

Cercospora copallina, Cooke in *Rav. Amer. Fungi*, No. 586.

Amphigena. Maculis suborbicularibus, rubrofuscis. Hyphis dense fasciculatis, fuscis, deorsum nigricantibus. Sporis cylindraceis, flexuosis, nucleatis, hyalinis ($\cdot035\cdot05 \times \cdot004$ mm.).

On leaves of *Rhus copallina* (Rav., 2716). S. Carolina.

Quite different from *Cercospora rhoina*, C. & E.

Cladosporium pericarpium, Cooke in *Rav. Amer. Fungi*, No. 597.

Effusum, atrum, velutinum. Hyphis intricatis, ramulosis, repentibus, septatis, ramulis assurgentibus, brevibus, fuscis. Sporis cylindraceis, obtusis, 1-3 septatis, ad dissepimentis constrictis, concoloribus ($\cdot015\cdot025 \times \cdot005$ mm.).

On husks of walnut (Rav., 2998).

Cladosporium tuberum, Cooke in *Rav. Amer. Fungi*, No. 600.

Effusum, atro-fuligineum. Hyphis adscendentibus, flexuosis, septatis, fuscis, deorsum obscurioribus. Sporis cylindraceis, 1-2 septatis, obtusis, nec constrictis, fuscis ($\cdot01\cdot02 \times \cdot005$ mm.).

On tubers of *Batatas edulis* (Rav., 2844). S. Carolina.

Cladosporium epimyces, Cooke in *Rav. Amer. Fungi*, No. 596.

Effusum, tenue, fuligineum. Hyphis repentibus, septatis, ramosis, ramulis erectis, teretibus, fuscis, superne pallidioribus. Sporis lanceolatis, uniseptatis, concoloribus, hyalinis ($\cdot015\cdot02 \times \cdot004$ mm.).

On pileus of *Agaricus melleus* (Rav., 2761).

***Cladosporium fulvum*, Cooke in Rav. Amer. Fungi, No. 599.**

Effusum, lanosum, fulvum. Hyphis erectis, flexuosis, septatis, nodulosis, parce ramosis, fulvis. Sporis ellipticis, uniseptatis, vix constrictis, pallide fulvis, hyalinis ($\cdot01\cdot02 \times \cdot0045$ mm.).

On leaves of tomato (Rav., 3112).

***Cladosporium lycoperdinum*, Cooke in Rav. Amer. Fungi, No. 595.**

Effusum, fuscum, tenue. Hyphis sparsis, elongatis, flexuosis, septatis, hinc illic geniculatis, pallide fuscis. Sporis cylindracei, 1-2 septatis, fusco-hyalinis ($\cdot01\cdot02 \times \cdot0035$ mm.).

On *Lycoperdon* (Rav., 2794). S. Carolina.

***Macrosporium pyrorum*, Cooke.**

Effusum, atrum, indeterminatum. Hyphis subfasciculatis, erectis, flexuosis, parce septatis, fuscis. Sporis clavatis, stipitatis, superne rotundatis, vel apiculatis, multi-septatis, fuscis ($\cdot05\cdot1 \times \cdot01\cdot015$ mm.).

On leaves of pear (Rav., 2710). S. Carolina.

***Macrosporium erumpens*, Cooke in Rav. Amer. Fungi, No. 605.**

Maculaeforme, atris. Caespites erumpentibus. Hyphis abbreviatis, flexuosis, fuligineis. Sporis obtuse clavatis, merenchymaticis, concoloribus. Stipite abbreviato ($\cdot07 \times \cdot017$ mm.).

On dahlia stems (Rav., 2992). S. Carolina.

Little erumpent fascicles on broad black spots.

***Macrosporium bulbotrichum*, Cooke in Rav. Amer. Fungi, No. 604.**

Effusum, fuscum, tenue. Hyphis sparsis, abbreviatis, flexuosis, nodulosis, ad basim bulbosis, fuscis. Sporis clavatis, merenchymaticis, concoloribus ($\cdot05\cdot06 \times \cdot014\cdot02$ mm.).

On *Canna Indica* (Rav., 2815). S. Carolina.

***Macrosporium solani*, Cke.**

Epiphyllum. Maculis determinatis, pallidis, ellipticis, irregularibus, confluentibusve, circinato-striatis; hyphis brevibus, vel obsoletis. Sporis clavatis, longe stipitatis, 4-6 septatis, pallide fulvis, ($\cdot06\cdot07 \times \cdot01$ mm. sine stipite.)

On leaves of *Datura stramonium*, and tomato. S. Carolina (Rav., 3344, 3343).

Spores similar in this and *M. asclepiadeum*, but habit very different. In the present species seated on different spots, and very slightly coloured; in the other forming black, effused, irregular patches.

***Macrosporium asclepiadeum*, Cke.**

Atrum, velutinum, effusum, indeterminatum. Hyphis gracilibus, elongatis, septatis, pleurumque simplicibus, fuscis. Sporis clavatis, longe stipitatis, 5-7 septatis, hinc illic loculis divisatis, pallide fuligineis, $\cdot06\cdot07$ (sine stipite) $\times \cdot01$ mm.

On stems and leaves of *Asclepias amplexicaulis*. S. Carolina (Rav., 3333).

***Macrosporium tomato*, Cooke in Rav. Amer. Fungi, No. 603.**

Orbiculare, atrum. Hyphis abbreviatis, robustis, flexuosis, septatis. Sporis clavatis, superne leniter attenuatis, deorsum vix stipitatis, merenchymaticis, fuscis ($\cdot1\cdot12 \times \cdot02\cdot022$ mm.).

On ripe tomatoes (Rav., 3099). S. Carolina.

***Macrosporium cæspitulum*, Cooke in *Rav. Amer. Fungi*, No. 609.**

Erumpens, fasciculatum. Hyphis in fasciculos densos congestis, flexuosis, septatis, fuscis. Sporis clavatis, breviter stipitatis, 5-7 septatis, hinc illic transverse divisis, fuscis ($\cdot 05\text{-}07 \times \cdot 015$ mm.).

On asparagus stems (Rav., 3095). S. Carolina.

***Mystrosporum polytrichum*, Cooke in *Rav. Amer. Fungi*, No. 610, 611.**

Effusum, velutinum, atrum. Hyphis fasciculatis, erectis, flexuosis, septatis, fuscis. Sporis terminalibus, clavatis, 4-7 septatis, merenchymaticis, concoloribus ($\cdot 04\text{-}05 \times \cdot 012\text{-}016$ mm.).

On stems of dahlia, *Solanum melongena*, *Hibiscus esculentus*, *Cassia*, *Convolvulus*, on leaves of *Gladiolus*, on fruit of rose apple, on capsules of *Gossypium*, and on legumes of *Cassia occidentalis* and *Phaseolus* (Rav., 2997, 2769, 2809, &c.). S. Carolina.

***Epochnium quadratum*, Cooke in *Rav. Amer. Fungi*, No. 773.**

Hypophyllum, in maculis indeterminatis atris oriundum. Hyphis repentibus, ramosis, nodulosis, fuscis. Sporis quadratis, cellularum quatuor globosarum compositis ($\cdot 02$ mm. diam., cell $\cdot 01$ mm.).

On leaves of *Fraxinus* (Rav., 3388). Darien, Georgia.

***Epochnium botryoideum*, Cooke.**

Tenuer effusum, atrum, indeterminatum. Hyphis repentibus, septatis, ramosis, fuscis. Sporis subellipticis ($\cdot 04 \times \cdot 015$ mm.), cellularum plurimum globosarum compositis, fuscis.

On logs (Rav., 4017). Darien, Georgia.

***Psilonia aterrima*, Cooke.**

Aterrima, lineato-maculata, erumpens. Hyphis erectis, rigidis, subulatis, parce septatis. Sporis ad basim immixtis, globosis, laevibus, atris ($\cdot 008$ mm. diam.).

On *Gynerium argenteum* (Rav., 3141).

Threads about $\cdot 5$ mm. long, and of the diameter of the spores at the base, attenuated upwards.

***Camptoum cuspidatum*, Cooke & Hark.**

Atrum, in cæspitibus hemisphericis congestum. Hyphis simplicibus, septatis, internodis collapsis, subhyalinis. Sporis lunatis, cuspidatis, fuscis ($\cdot 03 \times \cdot 009$ mm.) inspersis.

On *Scirpus* (Harkness, 2071, 2085). California.

***Stachybotrys sub-simplex*, Cooke *Rav. Amer. Fungi*, No. 775.**

Effusum, atrum. Hyphis simplicibus, erectis, tenuibus, septatis, superne lobato-capitatis. Sporis globosis, laevibus, atrofuscis, ($\cdot 006$ mm. diam.).

On *Musa* (Rav., 3368). Darien, Georgia.

***Sporocybe digitata*, Cooke.**

Sparsa, atra. Hyphis rigidis, erectis, septatis, superne breviter digitato-lobatis. Sporis globosis, laevibus, atrofuscis ($\cdot 009$ mm. diam.).

On sheaths of *Zea mays* (Rav., 3). Florida.

SACCARDO'S SYLLOGE FUNGORUM.

We are glad to announce the publication of the second volume of this work, but any detailed criticism can only result from a careful examination. We have no occasion to repeat our strictures on the *system*, and as for its application we seem to recognise deficiency in practical acquaintance with the Extra-European species, which has already been commented upon in this Journal.

The third volume is announced for next year, and will contain the *Sphaeropsidæ*, *Melanconidæ* and *Hypomyctidæ*. We hope, on various grounds, that we shall have no primary divergence of opinion as to the basis of classification in these lower fungi, and shall be able to welcome the third volume with increased satisfaction. From an outline of the scheme in "Michelia," we gather what will be the aspect of the group called—

MICRONEMÆ,

which includes the *Torulaceæ* and the *Sporidesmiaceæ*.

I. AMEROSPORÆ, Sacc.

Conidia continuous, globose, ovoid, or oblong, dark coloured.

a. Conidia catenulate.

1. *Torula*, Pers.

And here we would hope that some attempt will be made to separate such species as *Torula hysteroides* Corda, and one or two others, which are certainly aberrant forms of *Torula*.

2. *Heterobotrys*, Sacc.

3. *Hormiscium*, Kunze.

β . Conidia in glomerules.

4. *Echinobotryum*, Corda.

γ . Conidia single.

5. *Coniosporium*, Link.

But wherefore not *Conisporium* as Link published it? Moreover we should have preferred the retention of *Gymnosporium* Corda, as better known, and less likely to cause confusion by a similarity of names.

II. DIDYMOSENÆ, Sacc.

Conidia ovoid, or oblong, uniseptate, brown.

a. Conidia catenulate.

6. *Bispora*, Corda.

β . Conidia single.

7. *Dicoccum*, Corda.

To this genus belongs *Dicoccum diplodium*, which is the *Sporidesmium diplodium*, Cooke.

III. PHRAGMOSPORÆ, Sacc.

Conidia 2 or more septate, elongated.

a. Conidia concatenate.

8. Septonema, Corda.

β . Conidia single.

9. Clasterisporium, Schweinitz.

This should not be *Closterosporium*, as written by Saccardo. There is no justification for thus altering an author's name.

10. Bactrodesmium, Cooke (perhaps including *Hymenopodium*, Corda) for the reception of several species with clavate, multi-septate, but not muriform spores, hitherto united with *Sporidesmium*; such as *S. abruptum*, B. & Br. *S. spilomeum*, B. & Br., &c.

11. Ceratophorum, Sacc.

12. Gyroceras, Corda.

13. Ceratosporium, Schweinitz.

This has priority of *Hirudinaria*, Ces., and to it should be referred *Sporidesmium digitatum*, Cooke.

14. Stigmina, Sacc.

We do not trace *Polydesmus*, D.R. & M., in this arrangement.

IV. DICTYOSPORÆ, Sacc.

Conidia, globose or oblong, muriformly septate.

a. Conidia concatenate.

15. Sirodesmium, D. Not.

We do not see *Trimmat ostroma*, Corda, recognized as distinct from *Coniothecium*. Part of *Sporidesmium*, indeed a large part, belong to this section instead of the next, as the conidia are normally concatenate.

β . Conidia single.

16. Sporidesmium, Link. (not *Sporodesmium*).

17. Tetraploa, B. & Br.

18. Dictyosporium, Corda.

Speira, Corda.

We do not agree with placing this genus here, its affinities are with the *Amerosporæ*.

19. Stigmella, Lev.

20. Coniothecium, Corda.

We have made these suggestions in advance, rather than have to urge them after the work is complete.

M. C. COOKE.

CLASSIFICATION OF THE UREDINES.

The Editor has said more than once that controversies upon matters mycological lead to no good; and, believing him to be right, I will only say that I have read carefully his remarks on p. 151. During the past summer I have been working at the physiology of the Uredines, and although I do not intend here to give the details of my experiments, I wish to point out—

(1) That the teleutospores of *Uromyces poæ*, *Rbh.* which previously had not been met with in Britain, have been found abundantly this year on *Poæ trivialis* and *P. pratensis* wherever their grasses grow near *Æcidium ficariæ*.

(2) That the *Æcidium* upon *Ranunculus repens* is connected with *Uromyces poæ*, and not, as was stated in my paper, with *Uromyces dactylidis*.

(3) That *Æcidium rumicis* is connected with *Puccinia arundinacea*; and that the *Æcidium* has followed the infection with *Puccinia Arundinacea* spores upon *Rumex obtusifolius*, *crispus*, *hydrolapathrum* and *conglomeratus*, and upon the common rhubarb.

(4) That up to the present time sowing the spores of *P. arundinacea* and *P. Magnusiam* on *Rumex acetosa* has with me produced no *Æcidium*.

(5) That as no *Puccinia* occurs on gooseberry leaves in this country it is clear *Æcidium grossulariæ*, as we find it, is not a *Pucciniopsis*, but is probably a heterocercismal species.

CHARLES B. PLOWRIGHT.

7, King Street, King's Lynn,
Aug. 15, 1883.

NEW BRITISH FUNGI.

By M. C. COOKE.

Polyporus (Merisma) umbellatus, Fr. *Hym. Eur.* 537.

Very much branched, between fibrous and fleshy, rather tough; pilei very numerous, *entire*, *umbilicate*; stems elongated, distinct, coalescing at the base; pores minute, white.

On stump. Epping (J. English), July 19.

Cluster about 7 by 5 inches, but immature. A most interesting addition to the British Flora.

Ramularia didyma, Ung. *Exanth.* (**Didymaria Ungerii**, Sacc. in *Michelia* II., 360.)

On leaves of *Ranunculus repens*. Abridge, Essex, June 23, 1883.

Helminthosporium Bloxami, Cooke.

Thinly effused, black; threads erect, rigid, opaque, thin, simple, or in a few instances furcate, slightly swollen, almost bulbous at the base; spores terminal, elliptical-clavate, three-celled, brown, with a thin episore ($0.025\text{--}0.027 \times 0.012\text{--}0.014$ mm.).

On naked wood. Twycross (*Bloxam*).

Threads longer and rather more robust than in *H. obovatum*; septa just visible in the upper part of the thread, but concealed below; spores elliptical, three-celled, the lowest cell small, the other two nearly equal, rounded above.

***Helminthosporium tingens*, Cooke.**

Lignicolous. Thinly effused, black, tinging the matrix deeply of a purplish rose colour; threads long, rigid, straight, simple, septate, with the cells abbreviated so as to be little longer than broad, brown; spores mostly terminal, elliptical-clavate, 3 (rarely 4) septate, paler than the threads; episporule thin (0.03×0.01 mm.).

On rotten wood. Staunton.

Whether the stain of the wood is really due to the mould is difficult to determine, or whether, if so, it is a permanent character. The other features are, nevertheless, quite distinct enough to warrant its being recognised as a good species.

***Cercospora moricola*, Cke. in Greillea XII., p. 30.**

On mulberry leaves. Clevedon.

SOME EXOTIC FUNGI.

BY M. C. COOKE.

We will commence this small and rather miscellaneous contribution by reference to a *Polyporus*, of which we have not succeeded in finding a published diagnosis. We have therefore copied the description which accompanies the specimens in the Berkeley Herbarium.

***Polyporus (Merisma) anax*, Berk.**

Polyporus very much and intricately branched, the branches terminating in numerous frondose lobed pilei of various forms and sizes, imbricating and confluent, of a dusky grey, or lead colour, and somewhat downy or minutely fibrous above. The pores are white, varying in size and form, but mostly large and angular. The substance is coriaceous, brittle when dry. The smell is like that of mice, when it is in a dry state, but when moist almost inodorous.

Found at the base of a dead stump, branching out from a thick single stem at the base, until at the top it formed a large head of branches and lobed pilei quite 16 inches in diameter. Ohio, U.S. Herb. Berk., No. 2458.

***Spathularia velutipes*, Cke. & Farlow.**

Gregaria. *Clavula spathulata*, *compressa*, *laevis*, *aurea*. *Marginea subundulata*. *Stipite æquali*, *cavo*, *radio-velutino*. *Ascis clavatis*, *stipitatis*. *Sporidiis filiformibus*, *curvulis*, *flexuosis*, *hyalinis* (0.06 mm. long). *Paraphysibus filiformibus*.

In swampy ground, Shelburne, and Lake Willoughby, Vermont, U.S.A.

The stem is velvety throughout its length and bay-brown, by which it may readily be distinguished from *S. flavidia*.

Ailographium lituræ. Cke.

Epiphyllum. Maculis orbicularibus, fuscis. Peritheciis linearibus, curvulis rectisve, atris, in maculis insidentibus; labiis conniventibus. Ascis saccatis. Sporidiis biglobosis, uniseptatis, fuscis ($\cdot 0075 \times \cdot 0035$ mm.).

On leaves of *Quercus aquatica*. Texas (Rav., 161).

Cordyceps insignis. Cke. & Rav.

Livido-purpurea. Stipe recto (3-4 cm.) pallido, sulcato, aequali, capitulo subgloboso, ovatoe, e peritheciis leniter asperulo. Peritheciis minimis, confertis, ovatis, ostiolo punctiformi, obscuriore. Ascis cylindraceis, longissimis (6 mm.). Sporidiis filiformibus (45 mm.) frustulis (012 mm. long) dissilientibus.

On dead larvæ buried in the ground. Seaboard of South Carolina, U.S. (Ravenel, 3251).

Somewhat resembling *C. entomorrhiza*, but larger and more robust. Stem about 4-5 mm. thick and longitudinally sulcate. Capitulum $1\frac{1}{2}$ cm. long, and 1. cm. broad, livid purple. In many respects reminding us of *Cordyceps capitata*.

Pleospora Paronychiæ. Cke.

Epiphylla, sparsa. Peritheciis globosis, prominulis, papillatis, semi-immersis, minimis. Ascis clavatis; sporidiis fusiformibus, centro constrictis, multiseptatis, muriformibusque, atrofuligineis, demum opacis ($\cdot 03 \times \cdot 01$ mm.).

On fading leaves of *Paronychia serpyllifolia*. Luchon, France.

The sporidia when mature are so dark and opaque that the septa are masked in the ascus; they appear black and uniseptate; in earlier conditions the septa are distinct.

Hendersonia microphylla. Cke.

Peritheciis membranaceis, fuscis, globoso-compressis, sparsis, semi-immersis, sporis cylindraceis-obtusis, rectis, triseptatis, pallide fuscis ($\cdot 015 \times \cdot 0035$ mm.).

On fading leaves of *Paronychia serpyllifolia*. Luchon, France. (1827).

In company with a *Pleospora* and a *Sphaerella*.

Helminthosporium Mauritanicum. Cke.

Effusum, tenue, sub-velutinum, atro-fuscum. Hyphis erectis, simplicibus, crassiusculis (01 mm.), fuscis; deorsum opacis, atris, sursum pallidiore, septatis. Sporis terminalibus, lateralibus, sparsisve, clavatis, pellucidis, pallide fuscis, demum 5-7 septatis ($\cdot 05 \times \cdot 018$ mm.), episporio tenui.

On twigs and herbs. Mauritius.

The threads are thick and rigid, almost as in *H. macrocarpum*, but the spores resemble those of *H. apiculatum*. The spore membrane is very thin, and the septa often indistinct.

Cercospora Timorensis. Cke.

Epiphylla. Maculis orbicularibus, brunneis. Hyphis brevissimis, hyalinis, subfasciculatis. Sporis linearibus, superne attenuatis, flexuosis, 3-4 septatis, hyalinis ($\cdot 05 \times \cdot 001$ mm.).

On leaves of *Ipomœa cynosa*. Timorlaut. Dr. A. B. Meyer.

Cercospora Protearum. Cooke.

Epiphylla vel amphigena. Maculis orbicularibus, fuscis. Fasciculis hyphorum dense congestis, ærugineo-fuscescentibus, sporis magnitudine, vix septatis. Sporis cylindraceis, obtusis, 3-5 septatis, rectis, curvulis, flexuosisve, ærugineis.

Var. **Leucospermi.** Sporis ·05-·06 × ·008 mm.

On *Leucospermum conosarpum* (No. 1456).

Var. **Leucodendri.** Maculis obscurioribus. Sporis hyplisque minoribus pleumque 3 septates (·035 × ·007 mm.).

On *Leucodendron argenteum* (No. 1457). Cape of Good Hope. McOwan.

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Grevillea,

A QUARTERLY RECORD OF CRYPTOGAMIC BOTANY
AND ITS LITERATURE.

NEW BRITISH FUNGI.

By M. C. COOKE.

(Continued from p. 37.)

Agaricus (Tricholoma) duracinus, Cooke.

Pileus fleshy, compact, firm, dry, smooth, shining, convex, broadly umbonate, cinereous, margin involute; stem solid, attenuated upwards, striate below, reticulate squamose above, rather paler than the pileus; flesh nearly white; gills narrow, crowded, emarginate, arcuate, *cinereous*.

On the ground, under cedar. Kew Gardens, Oct., 1883.

Pileus 3 inches diam. Stem 3 inches long, $1\frac{1}{4}$ inch thick at the base, nearly an inch at the apex. Fleshy disc nearly an inch thick. Gills little more than a line (scarcely one-eighth of an inch) broad. Upper part of the stem minutely squamose in a peculiar reticulated manner. Whole fungus cinereous and firm. Allied to *Ag. tigrinus*, Fr.

Agaricus (Mycena) leucogalus, Cooke.

Cæspitose. Pileus membranaceous, campanulate, umbonate, *sulcate* to the middle, purple brown, paler at the margin, becoming black at the umbo, milk white, plentiful; stem slender, a little thickened downwards, fistulose, of the same colour as the pileus, whitish tomentose at the base; gills adnate, with a small decurrent tooth, rather distant, connected by veins, cinereous.

On rotten stump. Kew Gardens, Oct. 9, 1883.

Pileus half an inch broad and high, not exceeding an inch. Stem 3 inches long, forming dense cæspitose tufts. Very similar in general appearance to *Ag. pullatus*, B. & Cke., but belonging to a different section. It could not be retained as a mere variety of *Ag. galopus*.

Cortinarius (Phlegmacium) napus, Fr. Hym. Eur. 343.

Pileus fleshy, convex, then plane, smooth, glutinous, margin broken; stem solid, equal, smooth, ascending from an obconic, oblique, marginate bulb, flesh-white; gills emarginate, broad, rather distant, crisped, whitish, then dingy.

In pine woods. Woolhope Foray, 1883.

Cortinarius (Phlegmacium) purpurascens, var. sub-purpurascens, Fr. Hym. Eur. 346.

Pileus thinner than in the type form, slightly virgate, growing pale ; stem stuffed, nearly equal, white, with a bluish tinge ; bulb somewhat marginate ; gills cinnamon, and, as well as the flesh, becoming purple when bruised.

On the ground. Epping Forest, Oct., 1883.

Cortinarius (Phlegmacium) fulmineus, Fr. Hym. Eur. 347.

Pileus compact, convex, then plane, viscid, marked with agglutinated scales, shining ; stem solid, stout, yellow, naked, with a white cortinate veil at the apex ; bulb broad, rooting ; gills rounded, crowded, at first pure yellow.

In shady woods. Ledbury.

Cortinarius (Phlegmacium) orichalceus, Batsch.

Pileus fleshy, becoming flattened, smooth, with a viscid pellicle, disc rubiginous, cracking in scales, margin becoming livid ; stem solid, equal, fibrillose, yellowish, with a marginate bulb ; gills somewhat adnate, broad, sulphureous, becoming greenish.

Under trees. Lyndhurst, New Forest.

Cortinarius (Myxacium) arvinaceus, Fr. Hym. Eur. 354.

Pileus fleshy, soft, becoming plane, smooth, viscid, margin spreading ; stem tall, cylindrical, silky-viscid, white, then yellowish ; gills adnate, decurrent, broad, even, straw-coloured, then ochraceous.

In beech woods.

Cortinarius (Dermocybe) miltinus, Fr. Hym. Eur. 369.

Pileus fleshy, thin, convex, bay-cinnamon, soon quite smooth and shining ; stem hollow, equally attenuated upwards, cinnamon, clad with reddish fibrils ; base thickened, white, tomentose ; gills adnate, narrow, plane, crowded, ferruginous.

In mixed woods. Ledbury.

Cortinarius (Dermocybe) infucatus, Fr. Hym. Eur. 372.

Bright yellow. Pileus fleshy, convex, obtuse, silky when dry ; stem solid, attenuated from the clavate base, fibrillose, paler, gills adnate, crowded, linear, fulvous then cinnamon. Flesh white.

On the ground. Haywood Forest, Hereford.

Lactarius scrobiculatus, Fr. Hym. Eur. 422.

Pileus fleshy, depressed, without zones, yellow, margin involute, villose, stem hollow, thick, scrobiculate spotted, gills thin, crowded, whitish, milk white then sulphury yellow.

On the ground. Near Bristol. (C. Bucknall.)

Lactarius capsicum, Schulz. Fr. Hym. Eur. 428.

Pileus compact, pulvinate, dry, chestnut colour, margin narrowly involute ; stem solid, firm, whitish, striate with brownish or reddish fibrils, gills adnate-decurrent, rather crowded, tawny, approaching to orange ; milk white, acrid.—Kalch, Icon. Hung. t 26, f. 1.

On the ground. Dumfries (Rev. F. Stevenson.)

Russula citrina, Gillet. *Hym. Supp.* 6.

Mild. Pileus fleshy, convex, more or less a little depressed in the middle, rather viscid when moist, smooth, a little wrinkled at the margin when old, of a bright citron yellow, ordinarily uniform, sometimes a little lighter at the margin, and occasionally also slightly tinted greenish (5-10 cent. diam.). At length the centre of the pileus is discoloured and takes a pale ochraceous tint; the epidermis is easily raised at the margin of the pileus. Gills white, slightly decurrent, bifurcate at the base, and occasionally also in the middle, broader at the marginal extremity, insensibly attenuated towards the base. Stem solid white, striate, equal, or a little attenuated at the base, straight, or slightly flexuous; flesh white, rather firm; odour almost none; taste sweet, or very slightly acrid.

In mixed woods. Autumn.

Boletus aurantiporus, Howse.

Pileus at first fulvous ferruginous then pale gilvous, pulvinate then expanded, viscid, at length squamulose about the margin; stem equal, beautifully reticulated with yellow and red, tubes deeply decurrent, pores broad, angular, golden yellow then orange, *turning red when bruised*, flesh becoming slightly reddish.

Under trees. Near Shere. (Rev. G. Sawyer.)

Pileus about 2 inches broad, stem 3 inches long.

Boletus granulatus, Fr. var. **tenuipes**.

Pileus gilvous, viscid, streaked with minute fibrils when dry, stem $3\frac{1}{2}$ inches long, attenuated at the base, yellow, becoming rufescent, pores adnate, with faint decurrent lines on the top of the stem, flesh under the pileus roseate pink.

On the ground. Monks' Wood, Epping.

Intermediate between *B. bovinus* and *B. granulatus*, with some of the features of both, and not readily to be referred to either. The Rev. M. J. Berkeley considers that it approaches most to *B. bovinus*, but the pores are smaller, and the tubes are shortened as they approach the stem.

Peziza (Sepultaria) hybrida, Sow.

It must always remain a question of individual opinion as to what is really the *Peziza brunnea* A. and S. and the *Peziza hybrida*, Sow., and whether both are the same species. Recently Mr. Cedric Bucknall has submitted to us specimens of a *Peziza* which, in our opinion, approximates most closely to the species of Sowerby of anything we had previously seen. It was found growing between paving stones in an area at Bristol. In size attaining three-quarters of an inch in diameter. The disc orange red, but not deep; externally brown, clad with fascicles of rather rigid, straight-pointed hairs ($2 \times .008$ mm.). Sporidia elliptic ($.016 \times .008$ mm.). The nearest approach in the size of sporidia to this species is the *P. umbrata*, Fr. (Mycographia, fig. 137), but here all similarity ceases. The size is very much greater, the external hairs are fasciculate and straight as in *P. gregaria*,

and not delicate, and flexuous as in *P. umbrata*. The habit and structure is that of the section *Sepultaria*, and not of *Scutellinia*. The figures given by Sowerby represent the species very well except that the disc is hardly so bright. All circumstances considered, we feel satisfied that it is most probable this is really the missing species. How far this may be regarded as identical with the *Peziza brunnea*, A. and S., may after all remain doubtful; we are prepared to accept it, meanwhile, as the *Peziza hybrida* of Sowerby.

Peziza (Sclerotinia) sclerotiorum, Lib.

It is to be regretted that by some error this species has been described over again in the *Gardeners' Chronicle*, under the name of *Peziza postuma*, Berk. and Wils. From a careful examination of fresh specimens, we can trace no difference.

Cenangium phæosporum, Cooke.

Scattered, erumpent, clove-brown, about 1 mm. diam., shortly stipitate, externally rather delicately furfuraceous, attenuated downwards into the darker stem, margin a little incurved, disc nearly of the same colour. Ascii elongated clavate, sporidia uniseriate, smooth, clear brown ($\cdot 012 \times \cdot 008$ mm.). Paraphyses thick, clavate, brown above.

On sycamore bark. Exeter (E. Parfitt).

Hypospila (Linospora) viburni, Bucknall.

Epiphylla, sparsa, nigricans. Pseudo-peritheciis convexis, subrugosis, folii innatis, prominentibus, astomis, suborbicularibus, cellulosis. Ascis cylindraceis, octosporis. Sporidiis stipatis, filiformibus, hyalinis ($\cdot 16$ mm. long).

On dead leaves of *Viburnum lantana*, near Bristol (C. Bucknall).

Closely allied to *Hypospila populina*, Fr., and, in the arrangement of Saccardo, it would be placed with it in the section *Ceuthocarpon* of *Linospora*.

**NOTES ON ALKALOIDS AND OTHER SUBSTANCES
THAT HAVE BEEN EXTRACTED FROM FUNGI.**

By CHAS. G. STEWART.*

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The chemistry of Fungi is by no means in a satisfactory state. Many of the existing statements are rendered doubtful by a bad identification of the species. It is also difficult to obtain a sufficient amount of raw material, and its perishable nature interposes another obstacle. Beyond this, the research itself is so difficult and expensive, and the question of profitable result is so remote to ordinary minds, that few qualified chemists have even ventured upon the task. This paper offers little that is original on

* Read at the Woolhope Club, Hereford, October 3rd, 1883.

the subject. I have only endeavoured to collect together such facts as were scattered in chemical literature, and to explain them as untechnically as was possible with due regard to exactness and truth. This must be my apology if to some I seem too elementary, and to others too abstruse.

Assuming that all plants are built up of cells, and that the essential parts of a cell are the *cell-wall*, and the *cell contents* (or protoplasm), we may assert that the cell-wall mainly consists of one of the varieties of cellulose, a colorless, tasteless substance insoluble in water, existing in three forms :—*Cellulose proper*, as found in cotton; *paracellulose*, existing in some roots and the epidermis of leaves; and *metacellulose* or *fungin*, occurring in fungi and lichens. These are distinguished by different solubilities in ammoniated copper solution.

The cell-wall of fungi consists then of this metacellulose or fungin. They contain no lignin or woody fibre. All varieties of cellulose have the composition $C_6 H_{10} O_5$, or a multiple of it.

The cell-contents, on the other hand, are very complex. Of course there is water, varying from 90 per cent., in fleshy species, to 9 per cent. in a woody *Polyporus*. Also essential to life is some variety of fibrin or albumen; substances classed together under the name of "albuminoids," and distinguished by containing nitrogen as well as carbon, hydrogen and oxygen, by their complicated constitution, and the ready changes they undergo under the action of vital forces or of putrefaction. As these substances are especially valuable in food, the nutritive value is in great part indicated by the percentage of nitrogen. This percentage in fungi is very high, higher indeed in dried *Agarics* than in peas and beans, the next articles in this respect. As to the special kinds of albuminoids present in fungi, this has not been made out, but we know that they closely resemble the varieties found in animal food.

Mineral Salts, found as "ash" on burning, are also essential in food. The cells of fungi contain a large proportion. Analyses by Schlossberger and Döpping show amounts of nitrogen varying from 7·2 per cent. in *A. (Psalliota) arvensis*, to 3·2 in *Cantharellus cibarius*; and an "ash," or mineral matter, varying from 19·8 per cent. in *Psalliota arvensis*, to 3·0 in *Polyporus fomentarius*, all calculated on the dried plant.

Another class of substances containing nitrogen are "alkaloids," or organic bases. These do not afford nutriment, but are characterised by poisonous or medicinal action. They are generally present in very small quantities. We will defer their consideration for the present.

Starch and *chlorophyll*, two prominent constituents of other vegetals, are absent in fungi, but a near relative of the former, *Myco-inulin*, closely resembling the inulin found in *Dahlia* roots, &c., has been discovered in a kind of truffle, *Elaphomyces granulatus*. It is a white, tasteless substance, soluble in hot water, and not blued by iodine. Its formula is $C_6 H_{10} O_5$.

The *Sugars* found in fungi are :—

1. *Mannite*, identical with that extracted from the manna of *Fraxinus ornus* and other kinds of Ash.

2. *Mycose* or Trehālose (formula the same as cane sugar, $C_{12} H_{22} O_{11}$), contained in ergot and other fungi, and in a peculiar variety of manna from the East. It is colorless, crystallizable, very sweet and soluble, and ferments with difficulty.

3. An uncrystallizable and easily fermentable sugar resembling honey or treacle (lævulose).

Other obscure gummy substances are present, and are classed together as " extractive matters." They present little interest.

Oils and fats occur in most. Ergot contains 30 per cent., consisting of palmitin, olein, and possibly peculiar fatty acids.

The vegetable acids of fungi comprise citric, malic, fumaric, oxalic, agaricic, and others. *Fumaric acid* is closely related to malic, the acid of apples; it occurs also in *Chelidonium majus* and *Fumaria officinalis*. *Agaricic acid* is a crystallized colorless body, discovered by Fleurÿ (*J. Pharm.* [4] x, 202) in *Boletus laricis* and *Polyporus officinalis*. Hamlet and Plowright established the presence of oxalate of lime, or acid oxalate of potassium, in 30 species of *Agaricus*. In *Fistulina hepatica* they found 0·083 per cent. of free oxalic acid. See the "Chemical Society's Journal," 1879, for other analyses by them. The "fungic acid" of Braconnot and earlier observers is a mixture of citric, malic, and phosphoric acids. Some fungi contain free acetic acid.

Various *resins* have been isolated, but are not well defined.

The *coloring matters* of fungi are often very characteristic, but are chemically still very obscure. Four yellow or orange matters have been made out, distinguished by giving, when viewed through the spectroscope, two absorption bands in the green or blue, differing in position. *Phycoxanthine* is yellow. *Pezizaxanthine* from *Peziza aurantia* is orange. There are also two relatives of the *Xanthophyll* or yellow coloring matter of leaves. All these are destroyed by light, but are not immediately altered by weak acids or alkalies.

A red coloring matter was extracted by Phipson from *Agaricus violaceus*.

From *Polyporus purpuraceus* occurring on oaks, and remarkable for turning violet with ammonia, Stahlschmidt (*Liebig's Annalen*, clxxxvii, 177) extracted " *Polyporic acid*," formula $C_9 H_7 O_2$, constituting 43·5 per cent. of the dry fungus. It is an ochre-yellow powder, insoluble in water, but soluble with intense violet color in alkalies. It crystallizes from hot alcohol in small plates, having a bronzy lustre. The salts also crystallize. It belongs to the aromatic series, and is related to benzoic acid.

A section of *Boleti*, notably *B. luridus*, contain a yellow coloring matter, which turns blue on exposure to air. Phipson has asserted that this was a derivative of *aniline*. But neither aniline nor its salts have this property. Seeing that the Indigo plant and the

Woad (*Isatis*) contain a yellowish substance called *Indigogen*, which is converted into Indigo-blue on exposure to air, I suggested some years ago that *B. luridus* contained this Indigogen. I extracted about 2 lbs. of the fungus with alcohol, and obtained a brownish yellow extract becoming rapidly blue in air. But indigo is a very stable substance, which may be reduced by organic matter to colorless *Indigo-white*, and then again oxidized to Indigo-blue on exposure, and this transition may be effected any number of times. The pigment of *Boletus*, on the other hand, rapidly passes from yellow to blue, and from blue to brown; while in the blue state it can be again reduced to yellow; but when it has once become brown it seems to be destroyed, as I could not by any means restore the blue color. Indigo gives in the spectroscope a very definite absorption band: in the blue matter of *Boletus* I could not detect any special band. The finally resulting brown matter was amorphous, acid, soluble in water and alcohol, and appeared very similar to the humus-like bodies extracted from peat, &c. It did not contain nitrogen. I could not, however, obtain the blue matter in a pure state on account of its rapid decomposition, but it certainly contains neither indigo nor aniline. It has been stated that *B. cyanescens* yields a brownish yellow pigment, turned deep-blue by sodium hypochlorite, and unaffected by weak alkalies or acids, and that similar reactions occur with *B. luridus*, *Satanas*, *calopus*, and *variegatus*. I found, however, that *B. luridus* was simply bleached, and not blued, by sodium hypochlorite. No cyanogen compound is present.

Now as to the *Alkaloids*. An alkaloid means literally a compound resembling an *alkali*. The alkalis are potash, soda, and ammonia; they have the well-known effects of blueing vegetal reds, of forming salts with acids, of an acrid taste, a soapy feel and characteristic odors. Certain compact groups of carbon and hydrogen, which can pass entire from compound to compound, are thence called *compound radicles*. The alkali ammonia, then, being composed of one atom of nitrogen to three atoms of hydrogen, can have its hydrogen replaced by one or more of these compound radicles. So we form a "*compound ammonia*," or "*amine*." These "*amines*" partake of the characters of the alkali ammonia, and hence are called *alkaloids*. They are generally colorless, alkaline in reaction, and form crystallizable salts by union with acids.

As a rule, they are powerful in their action on the system, hence the plants which contain notable quantities of them are either medicines, poisons, or perhaps condiments like pepper, or semi-medicinal foods like tea or coffee. For this reason their study is a most important feature of plant-chemistry.

From ammonia (NH_3), by substituting the "compound radicle" *methyl* (CH_3) for hydrogen, we get a volatile alkaloid *tri-methyl-amine*, a colorless liquid with a powerful fishy odor; in fact it is the cause of the smell of decayed fish, and is extractable from herring-roes, from crayfish, and from other fishy sources. It is

also found in the flowers of *Crataegus oxyacantha*, *Crataegus monogyna*, *Pyrus aucuparia* and *communis*, *Chenopodium vulvaria*, and in some odorous fungi, especially in Ergot of rye, and in putrefying yeast. Probably *Phallus impudicus* and *Clathrus cancellatus* owe their odor to trimethylamine.

The formula of trimethylamine is $N(CH_3)_3$ or C_3H_9N . This group itself forms the nucleus of a series of alkaloids differing from one another by two atoms of hydrogen:—

Betaine, $C_2H_2[N(CH_3)_3]O_2$ or $C_5H_{11}NO_2$.

Muscarine, $C_2H_2[N(CH_3)_3](OH)_2$ or $C_5H_{13}NO_2$.

Amanitine, $C_2H_4[N(CH_3)_3](OH)_2$ or $C_5H_{15}NO_2$.

Betaine occurs in *Beta vulgaris* and *Lycium barbarum*, but has not yet been found in fungi.

Muscarine, $C_5H_{13}NO_2$, was discovered by Schmeideberg about 1873. In the "Chemische Centralblatt" of 1876, p. 554, occurs his paper establishing its composition and artificial production. It occurs together with amanitine in *Am. muscaria*. The juice is evaporated, treated with alcohol, and then with lead acetate. After a long and complicated process the hydrochlorides of muscarine and amanitine are obtained, and are separated by pressing with paper, which absorbs the more deliquescent muscarine salt, and leaves the amanitine. The yield is very small, as 2 lbs. of the alcoholic extract (representing a very much larger quantity of the fungus, perhaps about 40 or 50 lbs.) gave only about $\frac{1}{4}$ oz. of muscarine.

Muscarine forms a colorless inodorous syrup, crystallizing with great difficulty, easily soluble in water and alcohol, sparingly in chloroform, and not soluble in ether. It is strongly alkaline, forms crystallizable deliquescent salts, and is a strong narcotic, in some respects antagonistic to atropia. [Later researches show that this antagonism of physiological effect is not complete; there are lateral actions of each poison which may make a combined dose of each more fatal than the same quantity of either separately, so that its action as an antidote must be carefully watched.] Muscarine has not been obtained from any other natural source, but can be made artificially from amanitine.

Amanitine, $C_5H_{15}NO_2$ is identical with the animal bases *choline* and *neurine*. Its sources are:—

1. *Am. muscaria*, hence the name *amanitine*.
2. *Bile*, hence the name *choline* (Strecker).
3. *Brain and nerve tissue*, hence the name *neurine*.
4. From eggs and the milt of the salmon, &c.
5. It can be prepared artificially by a complicated process.

It is only of late years that the identity of these products has been proved. Amanitine is chemically called—

"Trimethyloxethylammonium hydrate."

It is a white crystalline substance similar to muscarine, but not so deliquescent, and not so poisonous.

By oxidizing agents, such as strong nitric acid, amanitine is converted into muscarine by the loss of two atoms of hydrogen. By

heat both muscarine and amanitine yield trimethylamine. The passage from muscarine and amanitine to betaine has not yet been effected. The price of muscarine, either natural or artificial, is 1s. per grain. I have not seen amanitine mentioned in a price list, except as choline or neurine.

The singular occurrences of amanitine (neurine or choline) are another link between fungi and the animal kingdom. The production of these bodies artificially is of great interest, as very few natural alkaloids have yet been artificially made; and these successes lead us to hope that we may some day produce such medicinal alkaloids as quinine and morphia by chemical means at a cheaper rate.

I do not know of any other alkaloids from fungi. I remember a paper by Phipson in the "Chem. News" about "Agaricus violaceus" (*Cortinarius*?), which professed to describe two new coloring matters and an alkaloid, but the information was very scanty. The processes are so tedious and costly. I myself tried to obtain an alkaloid from *Boletus luridus*, but failed. It requires about $\frac{1}{2}$ cwt. of raw product to have any chance of success.

Selini asserts that mildew and the larger fungi give off *hydrogen* and carbonic acid gas.

Taci (Comptes Rendus, lxxvi, 505) gives the following analysis of *Agaricus* (*Russula*?) *fætens* in percentages:—Water, 67; mannite, 0·6; fibrin (albuminoid matter), 4·6; gum, 1·5; fungin or cellulose, 20; fat, 0·68; ash, 5·13; with acids, coloring and odorous matters undetermined.

THE GENUS ANTHOSTOMA.

By M. C. COOKE.

The genus *Anthostoma*, as adopted by Saccardo in his "Sylloge," cannot be considered by any means satisfactory, from his own point of view. Judging from the heterogeneous mass of species collected in it, one is led to fancy it a sort of "refuge for the destitute," into which all the phæosporous species, not according with the other genera, might find a temporary home. Simple and composite forms almost jostle each other, and such strange companions as the *Sphaeria gastrina* of Fries, the *Halonia cubicularis* of Fries, and some species of *Nummularia* consort together in the same domicile.

If the principle acceded to in other parts of the work, that composite should be kept apart from simple forms, then the second section of the genus must be taken by itself, with a few stragglers from the first section, with the generic name proposed by Nitschke of *Fuckelia* retained. Even with such a modification, there will be less symmetry in the genus than in the analogous one of *Hypoxylon*, for after all the "idea" of the genus appears to be, that it

corresponds with *Hypoxyylon* in habit and in fructification, but with membranaceous instead of carbonaceous perithecia. If it be correct to take such a view, then *Sphaeria gastrina*, Fr., will be analogous to the pulvinate species of *Hypoxyylon*, and *Diatrype grandinia*, B., to the resupinate species. Even as we have dissected the genus, it is open to strong objection, as the consequence of adopting an artificial standard in the spore. Manifestly, if the species with a membranaceous perithecium are to be separated from those having a carbonaceous perithecium, then the other generic limits should correspond, unless it be contended that a feature held to be of generic value in one instance is inapplicable in the other. Corresponding to *Daldinia*, we have proposed our genus *Sarcoxylon*, and corresponding to *Hypoxyylon*, we now proceed with *Fuckelia*, but, unless we are greatly mistaken, the genus *Fuckelia*, as represented by the subgenus of the same name, includes either more or less than its analogue *Hypoxyylon*, by embracing Valsioid forms, and excluding effused Hypoxyloid forms, such as *Diatrype grandinia*, B. The only escape from such an anomalous position would have been in the separation and exclusion of all species which did not conform to the habit of *Hypoxyylon*. That is—having accepted the principle that the genus should include only species with simple coloured sporidia and *membranaceous* perithecia, the rest should follow on the same plan as adopted for species with simple coloured sporidia and *carbonaceous* perithecia. However we are not prepared to propose the details of any such arrangement, but shall endeavour to make the best of the present.

SARCOXYLON, Cke.

Stroma rather fleshy, pallid, or brightly coloured, subglobose, pulvinate, or depressed, perithecia submembranaceous, sporidia simple, coloured.

A. Sporoderm smooth.

1. Sarcoxylon compunctum, Jungh.

1231.

B. Sporoderm verrucose.

2. Sarcoxylon lycogaloides, B.

1342.

FUCKELIA, Nits.

In previous communications we have had occasion to commence with details of the measurements of the sporidia of species which had not previously been published, but in the present case this will be avoided, as we have no practical knowledge of the only species for which dimensions are not given.

EXCLUSIONS.—The following plants, for reasons already expressed in previous communications, are excluded :—

1133. *Anthostoma eterio* (B. & Br.), which is *Hypoxyylon eterio*, B. & Br.

1135. *Anthostoma conostomum* (*Mont.*). From authentic specimen just examined this appears to be a genuine *Hypoxyylon* (No. 52a).

1137. *Anthostoma hypophlæum* (*B. & Rav.*). This is *Nummularia hypophlæa*, B. & R. See "Grevillea," p. 8.

1140. *Anthostoma rumpens* (*Cooke*). This is *Nummularia rumpens* (*Cke.*). See "Grevillea," p. 8.

1141. *Anthostoma Massaræ* (*De Not*) is, according to authentic specimen, a good *Hypoxyylon*, and must remain as *Hypoxyylon Massaræ*, De Not.

ADDITIONS.—The additions proposed are very few, because, not having this revision in view, no notes have been made, and not having "fungus spores on the brain," we have been content to classify and arrange specimens without any special reference to what we regarded as a specific rather than a generic character. It is just possible, should we find leisure to proceed any further, that amongst others of the old genera some species may be found which would be better localized in this genus, if indeed there is any valid reason for the genus at all.

We may observe in passing, and acknowledge with gratitude, that Prof. Saccardo has, in the Appendix to his last volume, kindly pointed out several typographical errors (p. xlii.) in our communications. We can only regret that we are unable to reciprocate, and return the compliment, since, were we to do so, the list would occupy far more of our space than we can conveniently spare for such a purpose. We nevertheless thank him for his benevolent intentions.

***Fuckelia atrofusca*, Berk. & Curt. in Herb. Berk., 9004.**

Erumpens, pustulis minimis (vix $\frac{1}{2}$ mm.), ellipticis, cortice marginatis. Peritheciis inæqualiter in stromate atro depresso congestis. Ascis cylindricis, stipitatis, sporidiis ellipticis, fuscis ($.013 \times .007$ mm.).

On bark of *Rhus glabra*. Virginia mountains, U.S.A.

***Fuckelia amplispora*, Cooke.**

Stromate diatrypoideo, pustulato, peridermio primo tecto, demum stellato-fissurato, prominulo (1-2 mm. diam.), peritheciis paucis, in singulo stromate, 4-6 monostichis, majusculis globosis, tenuibus. Ascis cylindricis, breviter stipitatis; sporidiis uniserialibus ellipticis, utrinque obtusis, fuscis ($.016 \times .01$ mm.).

On bark, probably *Quercus*. United States (75).

***Fuckelia Carteri*, Berk. and Cooke in Herb. Berk.**

Erumpens, hemisphærica, demum libera, atra, composita ($\frac{1}{2}$ -1 mm. diam.), stromate corticali primitus fusco velata, peritheciis tenuibus membranaceis, subglobosis immersis, vix papillatis. Ascis cylindraceis, substipitatis. Sporidiis ovalibus, atro-fuscis ($.012 \times .009$ mm.).

On bark. Bombay (*Dr. Carter*).

Fuckelia Morsei, Berk. & Curt.*Hypoxyton Morsei*, B. & C. 1441.*Hypoxyton Blakei*, B. & C. 1343.

Not specifically distinct.

Fuckelia insidens (*Schwz.*, in *Fr. Syst. Myc.* II., 422).

Effusa, stromate subrotundo, innato fusco-nigro, peritheciis emergentibus confertis, ovatis, flexuosis (nec carbonaceis) sub-papillatis. Ascis cylindricis. Sporidiis uniserialibus, ellipticis, pallide fuscis (.008 × .004 mm.).

On branches. United States.

Fructification from original specimen. "ex. Herb. Schweinitz."

ARRANGEMENT.—The arrangement adopted in the following list is merely a subdivision into three sections, the first of which includes such species as would have been placed according to the Friesian system in *Diatrype* or *Valsa*; the second contains species with an erumpent pulvinate stroma, analogous to what is seen in many species of *Hypoxyton*; and thirdly, of species in which the distinct stroma is effused, as in other species of *Hypoxyton*, and such of *Diatrype* as *D. stigma*. It may fairly be urged that the first section should not legitimately be included, and in that we should concur, if the rule and practice in other and analogous genera is worth anything; otherwise there is no reason why all *Sphaeriacei* with simple brown sporidia should not be combined into one large genus, irrespective of their mode of growth or external appearance.

A. Stroma Diatrypoid.

1. Fuckelia Ellisii (Sacc.)	1146.
2. Fuckelia turgida (P.)	1128.
3. Fuckelia cercidicola (B. & C.)	1136.
4. Fuckelia dryophila (Curr.)	1149.
5. Fuckelia phæosperma (Ellis)	5936.
6. Fuckelia denigrans (Curr.)	1148.
7. Fuckelia atrofusca B. & C.	
8. Fuckelia insidiosa (Crouan)	1139.
9. Fuckelia linosperma (Mont.)	1132.
10. Fuckelia teniospora (Sacc.)	1130.
11. Fuckelia adusta (Cke. & Pk.)	1142.
12. Fuckelia amplispora , Cooke.	
13. Fuckelia amygdalina , Cooke.	1147.
14. Fuckelia Auerswaldii (Niessl.)	1138.
15. Fuckelia amæna , Nitschke.	1145.
16. Fuckelia aceris (Cke. & Ellis)	1123.

B. Stroma pulvinate.

17. Fuckelia microspora (Karst.)	1143.
18. Fuckelia gastrina (Fr.)	1129.
19. Fuckelia Plowrightii (Niessl.)	1134.
20. Fuckelia Carteri , Berk. & Cooke.	

21. Fuckelia examinans (<i>Berk.</i>)	5247.
22. Fuckelia Morsei (<i>B. & C.</i>)	1343, 1441.
23. Fuckelia Rhenana (<i>Fchl.</i>)	1144.
24. Fuckelia diathrauston (<i>Rehm.</i>)	1385.
25. Fuckelia ostropoides (<i>Rehm.</i>)	1131.

C. *Stroma effused.*

26. Fuckelia decipiens (<i>D.C.</i>)	1126.
27. Fuckelia hiascens (<i>Fr.</i>)	1125.
28. Fuckelia insidens (<i>Schw.</i>)	
29. Fuckelia grandinia (<i>B. & C.</i>)	1114.

NOTE.—*F. decipiens* and *F. hiascens* have the perithecia far too carbonaceous to accord well with the other species. It is, in fact, doubtful if the distinction is a practicable one.

We take this opportunity of supplementing our revision of *Hypoxylon* by the addition of a species which was accidentally omitted.

60* **Hypoxyylon polyporoideum**, *Berk. in Herb.*

Pulvinatum, convexo-applanatum, ochraceum, demum rufescens (1-2 cm.). Peritheciis minimis, numerosis, congestis, papillatis. Ascis cylindraceis. Sporidiis ellipticis, fuscis ($0.012\text{--}0.014 \times 0.006$ mm.).

On bark and wood. River Binne, Tschaddi, Africa.

ILLUSTRATIONS OF BRITISH FUNGI.

The second volume of this work is now completed, and the first and second volumes can now be had, bound in cloth, with the plates arranged systematically in the order proposed in the Index.

This is a good opportunity for commencing to take the work by those who are not already doing so. The first two volumes include the section *Leucospori* of the large genus *Agaricus*, and it is hoped that the remainder of the genus will be completed in two volumes of a similar size, now commenced in parts, as before, of which from six to eight will be issued during the year.

PHYCOLOGIA MEDITERRANEA.

Under this title Professor F. Ardissono has just issued the first volume of a work which promises to be exceedingly useful to algalogists, as an Algal Flora of the Mediterranean Sea. This first volume, issued as a memoir by the "Società Crittogramologica Italiana," is in large imperial octavo of 500 pages, and embraces the Florideæ. Professor Ardissono is already well enough known by his contributions to the Algalogy of the Mediterranean to give authority to his work, and we doubt not it will be accepted generally with considerable satisfaction.

FUNGUS FORAYS, 1883.

The Cryptogamic Society of Scotland held its annual meeting this year at Dumfries, but with what success we have had no report. The time was rather early for Fungi, and consequently they were not numerous. *Lactarius capsicum*, Schulz, was one of the most noteworthy of the "finds."

The Essex Field Club met in Epping Forest for their annual Foray on the 29th of September, but the day proved anything but a pleasant one, and consequently, as the foray was to be confined to less than three hours, the results were not extraordinary. During the greater part of the afternoon a persistent downpour prevented outdoor investigations.

The Woolhope Field Club opened its week of meetings by the arrival of guests on the evening of October 1st, and excursions were planned for the four succeeding days. A detailed account was published in the *Gardeners' Chronicle* for October 13th. The general impression was certainly that in the neighbourhood of Hereford, as well as in some other localities in Britain, the present was by no means a prolific year for fungi. From the North it has been reported that at one time the quantity observed was quite equal, if not above the average. In the New Forest this also seemed to be the case ; whilst in Cornwall the number was declared to be less than had been known for many years, and in many parts of the Eastern counties the same complaints were made. In Warwickshire, as far as we could judge, the number both of species and individuals was unusually small. In Epping Forest we have seen during the past Autumn fewer fungi than we have observed for many years. Hence we infer that although the general character of the year in England was unfavourable to the production of a good crop of fungi, there were in a few localities as many as are usually to be found in an excellent year. Fungi would seem to obey no law, or if they do, some law which is at present inexplicable to us, since in one place they have been scarce, and in another plentiful, at the same time.

The character of the Fungus flora around Hereford seemed to be rather marked by the occurrence of numerous species of *Cortinarius*, and at the same time Epping Forest, which usually furnishes several species in considerable numbers, yielded this year only here and there a solitary specimen.

Of the species found around Hereford, the following is an approximate list :—

<i>Cortinarius</i> (Phleg)	.	<i>triumphans</i> , <i>Fr.</i>
<i>Cort.</i>	.	<i>claricolor</i> , <i>Fr.</i>
<i>Cort.</i>	.	<i>sebaceus</i> , <i>Fr.</i>
<i>Cort.</i>	.	<i>varius</i> , <i>Fr.</i>
<i>Cort.</i>	.	<i>cyanopus</i> , <i>Fr.</i>
<i>Cort.</i>	.	<i>anfractus</i> , <i>Fr.</i>
<i>Cort.</i>	.	<i>multiformis</i> , <i>Fr.</i>

Cortinarius (Phleg.)	.	glaucopus, <i>Fr.</i>
Cort. . . . .	.	calochrous, <i>Fr.</i>
Cort. . . . .	.	fulgens, <i>Fr.</i>
Cort. . . . .	.	fulmineus, <i>Fr.</i>
Cortinarius (Myx.)	.	elatior, <i>Fr.</i>
Cort. . . . .	.	mucifluus, <i>Fr.</i>
Cort. . . . .	.	Riederi, <i>Fr.</i>
Cortinarius (Ino.)	.	albo-violaceus, <i>Fr.</i>
Cort. . . . .	.	Bulliardii, <i>Fr.</i>
Cort. . . . .	.	pholideus, <i>Fr.</i>
Cortinarius (Derm.)	.	ochroleucus, <i>Fr.</i>
Cort. . . . .	.	caninus, <i>Fr.</i>
Cort. . . . .	.	anomalus, <i>Fr.</i>
Cort. . . . .	.	miltinus, <i>Fr.</i>
Cort. . . . .	.	sanguineus, <i>Fr.</i>
Cort. . . . .	.	cinnamomeus, <i>Fr.</i>
Cort. . . . .	.	infucatus, <i>Fr.</i>
Cortinarius (Tela.)	.	bulbosus, <i>Fr.</i>
Cort. . . . .	.	torvus, <i>Fr.</i>
Cort. . . . .	.	scutulatus, <i>Fr.</i> ?
Cort. . . . .	.	armillatus, <i>Fr.</i>
Cort. . . . .	.	hinnuleus, <i>Fr.</i>
Cort. . . . .	.	paleaceus, <i>Fr.</i>
Cortinarius (Hydr.)	.	subferrugineus, <i>Fr.</i>
Cort. . . . .	.	castaneus, <i>Bull.</i>
Cort. . . . .	.	erythrinus, <i>Fr.</i>
Cort. . . . .	.	decipiens, <i>Fr.</i>

The above is certainly not a list to be despised for a single locality, during four days, of which, of course, some were rainy.

We cannot report so well of other genera, and know little of interest to be recorded.

The Hackney Microscopical and Natural History Society made a successful Saturday afternoon excursion on the Chingford side of Epping Forest on the 13th of October. A record was kept of upwards of 100 species of Hymenomycetes seen and determined, many of which of course were common species. Amongst the rarities was a very peculiar variety of *Boletus*, somewhat intermediate between *B. granulosus* and *B. bovinus*, and scarcely referable to either, which has been called *B. granulatus*, var. *tenuipes*. Besides this was *Ag. (Pleurotus) corticatus*, *Ag. (Pholiota) terrigenus*, and *Ag. (Amanita) spissus*. Several specimens of *Ag. (Clitocybe) cerussatus* were found, and proving agreeable to the taste whilst raw, were cooked and eaten, thus adding another, and an excellent one, to the list of edible species.

The Hertfordshire Natural History Society held their annual Cryptogamic meeting at Watford on Saturday, the 27th October, when a considerable number of species were added to the county list of Fungi, the complaint of the residents being that there were "fewer fungi in the woods this year than for many preceding

years." Perhaps the most interesting specimens found were some very large *Ag. (Amanita) excelsus*, and a cluster of *Ag. (Hypoloma) storea*.

This completes our brief record of the Fungus Forays of 1883. No frost, in the neighbourhood of London, occurring till the 13th of November, the Fungus season has this year been prolonged later than usual.

ON THE LICHENS IN DR. WITHERING'S HERBARIUM.

BY THE REV. J. M. CROMBIE, F.L.S.

Having recently been engaged in determining Dr. Withering's lichens now in the Herbarium at Kew, I here record the results of my examination. The lichens were contained in a small cabinet, each drawer of which had numerous divisions in which the specimens were arranged according to the order of the "Arrangement of British Plants" (Edition iii.), of which they are illustrative. Amongst the specimens which it contains are many from Dickson, Relhan, Griffith, and not a few from Robert Brown. Those from Dickson are especially interesting and valuable in the absence of his Lichen-Herbarium, of which no trace can be found, though it is no doubt somewhere in existence. Though sometimes, as in all old Herbaria, several distinct species appear under the same name, yet in what follows, the first identification immediately after Withering's own name, may, in most instances, be regarded as exclusively denoting the species, of which he gives his own short diagnosis.

A. Substance like powder.

Of the few species enumerated in this section there are no specimens, but they are evidently, as in other Herbaria, only leprarioid states of other lichens.

B. Crustaceous, granulated.

(1) With Black lines.

L. rugosus = *Dichæna rugosa* (Fr.) — (specimen from Dickson).

L. scriptus = *Graphis scripta* (Ach.) — (specimen from Relhan) and = *Graphis dendritica* (Ach.) — (specimen from Dickson).

Var. 2. = (?) *Hypoxylum fuscum*, Fr., as it appears, but without spores, — (specimen from Griffith).

(2) With Tubercles.

L. fagineus = *Pertusaria amara* (Ach.), sterile, and *P. globulifera* f. *discoidea* (T. & B.), — (specimens from Dickson).

Var. 2. = *Phlyctis agelæa* (Ach.) — (specimen from Dickson, s.n. *Lichen carpineus*).

L. betulinus. Of this there is no specimen, but it is evidently some young state of a *Pertusaria*.

L. lacteus = *Pertusaria lactea* (Schær.),—(specimen from Dickson: sterile).

L. atro-albus = *Lecidea aglaea* (Smmrst.),—(specimen from Griffith), and = *Lecanora cæsiocinerea* Nyl.,—(specimen on flint from Isle of Wight.)

Var. 2.—*Lecidea decolorans* var. *granulosa* (Whlnb.),—(specimen from Relhan, on peat earth).

L. simplex = *Lecanora simplex* (Dav.),—(specimen on slate from Griffith).

L. calcareus = *Lecanora calcarea* (Ach.),—(specimen from Relhan) and = *Lecidea rimosa* (Dcks.),—(specimen from Griffith), and = *Lecidea contigua* Fr.,—(specimen from Dickson).

L. immersus = *Lecidea calcivora* (Ehrh.),—(specimen from Dickson) and = *Verrucaria calcivora* Nyl.,—(specimen from Relhan).

L. sanguinarius = *Lecidea sanguinaria* (L.),—(specimen from Dickson, corticole). Cfr. Bot. Arr. Ed. 3, iv., pp. 6,7.

L. graniformis = *Lecidea myriocarpa* (DC.),—(specimens from R. Brown); probably not Dickson's plant.

L. oculatus = *Lecanora oculata* (Dcks.),—(a saxicole fragmentary specimen from Dickson, with the papillæ but little evolute and sterile).

L. muscorum = *Lecidea muscorum* (Sw.),—(specimens from Relhan and Dickson), and = *Lecidea millaria* Fr.,—(specimens from Griffith).

L. pilularis = *Lecidea contigua* Fr. minor, "apotheciis convexis,"—(specimens from Griffith and Davies).

L. gelasinatus, t. xxxi, f. 1.—*Sphinctrina turbinata* (Pers.),—(specimen from Griffith, evidently the plant intended), and = *Lecidea parasitica* (Flk.),—(specimen also from Griffith).

L. cinerascens = *Lecidea speirea* (Ach.),—(specimen from Griffith).

Var. 2.—*Lecanora glaucoma* (Hffm.), with *Arthonia varians* (Dav.), and having the margin of the apothecia subcrenulated,—(specimen from Griffith).

L. confluens = *Lecidea confluens* (Ach.). Of vars. 2 and 3 there are no specimens.

Var. 4.—*Lecidea fusco-atra* (Ach.),—(specimen from Griffith).

Var. 5.—*Lecidea grisella* (Flk.),—(specimen from Griffith).

Var. 6.—*Lecanora badia* (Ach.),—(specimen from Griffith).

L. canescens = *Lecidea canescens* (Dcks.),—(specimens from Dickson, Griffith, and also from Relhan s.n. *Lichen incanus*).

L. caeruleo-nigricans = *Lichen vesicularis* (Hffm.),—(specimens from Dickson, Hort. Sic. 24 and from Relhan).

L. niger = *Pannularia nigra* (Huds.),—(specimens from Griffith). Along with these are other specimens from Griffith and Dickson = *Pannularia triptophylla* (Ach.), sterile.

L. fusco-ater = *Lecidea enteroleuca* (Ach.),—(muricole, at Edgbaston) and = *Lecidea parasema*, Ach. (corticole, at Enville).

Var. 2. Of this there is no specimen.

L. cedri = *Lecidea declinans* f. *ochromela* (Ach.),—(specimen from Dcks. Hort. Sic. n. 24), and = *Lecanora Dicksoni* (Ach.),—(specimen from R. Brown).

L. querneus = *Lecidea quernea* (Dcks.),—(specimens from Griffith).

L. geographicus = *Lecidea geographica* (L.),—(specimens from Griffith, sufficiently typical).

L. sulphureus = *Lecanora sulphurea* (Hffm.),—(specimens from Dickson, Turner and Griffith).

L. flavo-virescens = *Lecidea citrinella* (Ach.),—(specimen from Dickson).

Var. 2.=f. *alpina* (Schær.),—(specimen from Griffith with young apothecia).

L. atro-virens = *Lecidea geographica* var. *atrovirens* (L.),—(specimen from Griffith).

L. rupicola = *Lecanora glaucoma* (Hffm.),—(specimens from Dickson and Griffith).

L. compositus t. xxxi., f. 2 = *Lecanora glaucoma* (Hffm.) with *Arthonia varians* (Dav.) parasitical,—(specimen from Griffith). With regard to *L. cinerascens*, *L. rupicola*, *L. compositus* and *L. varians*, cfr. Griffith's remarks in Bot. Arr. Ed. 3, iv., p. 8.

L. fungiformis = *Bæomyces rufus* f. *rupestris* (Pers.),—(specimen from Robson) and also = *Onygena equina* (Pers.),—(specimen from Relhan).

L. rufus = *Bæomyces rufus* (Huds.),—(specimens from Hudson and Relhan).

L. ericetorum = *Bæomyces roseus* (Pers.),—(specimen from Robson, with paler apothecia, whence Withering describes them as flesh-colour).

L. calvus = *Lecanora irrubata* (Ach.) f. *calva* (Dcks.),—(specimen from Dickson).

L. vernalis = *Lecidea luteola* (Ach.),—(specimens from Dickson and at Edgbaston), and also = *Lecanora luteoalba* (Turn.),—(specimens from Griffith and at Edgbaston).

Var. 2 = *Lecanora irrubata* (Ach.),—(specimen from Griffith, saxicole).

L. icmadophilus = *Bæomyces icmadophilus* (Ehrb.),—(specimens from Dickson and Relhan).

L. sphæroides = *Lecidea sphæroides* (Dcks.),—(specimens from Dickson and Griffith).

L. flavorubescens = *Lecanora aurantiaca* (Lghft.),—(specimen from Dickson).

L. pertusus = *Pertusaria communis* (DC.),—(specimen from Mr. Knapp, Malvern Hills).

L. ventosus = *Lecanora ventosa* (L.),—(specimens from Dcks. Hort. Sic. 23, and from R. Brown).

L. coccineus = *Lecanora haematomma* (Ehrh.),—(specimens from Dcks. Hort. Sic. 24, and from R. Brown).

(3) With Saucers.

L. corallinus = *Pertusaria dealbata* (Ach.),—(specimen from Dickson, fertile), and also fragments of var. *corallina* (L.), (probably also from Dickson).

L. parellus = *Lecanora parella* (L.),—(corticole specimens from Dcks. Hort. Sic. 23), and (saxicole specimens, Saltash Ferry).

L. crenulatus = *Lecanora umbrina* * *crenulata* (Dcks.),—(specimens from Dickson).

L. candicans = *Lecanora (Placodium) candicans* (Dcks.),—(specimen from Griffith).

L. varians = *Arthonia varians* (Dav.),—(specimen from Davies).

L. ater = *Lecanora oatra* (Ach.),—(saxicole specimens from Dickson and at Rowdley Hill), and also corticole specimens from Enville = *Lecanora atra* and *Lecanora chloroma* with *Sphaeria epicymatia*, Wallr.

L. subimbricatus = *Lecanora circinata* * *subimbricata* (Reh.), (* *Lecanora subcircinata* Nyl.)—(specimens from Relhan and Dickson).

L. concentricus = *Lecidea concentrica* (Dav.),—(specimen from Griffith).

L. punctatus. Of this there is no specimen.

L. scruposus = *Urceolaria scruposa* (Ach.),—(specimen from Relhan s.n. *Lichen excaratus*), and also = var. *bryophila*, (Ach.),—(specimens from Dickson and Griffith).

Var. 2. Of this there is no specimen.

L. frustulosus = *Lecanora frustulosa* (Dcks.),—(a fragmentary specimen from Dickson, not well evolute).

L. atrocinereus = *Lecanora atrocinerea* (Dcks.),—(specimen from Dickson), and also = *Lecanora (Placodium) chalybæum* (Duf.),—(specimen from Robson).

L. gibbosus. Of this there is no specimen.

L. Dicksoni. Of this there is no specimen.

L. pruinatus. Of this there is no specimen.

L. corneus t. xxxi., f. 3 = *Lecidea cornea* (With.),—(three specimens from Griffith). This is the *Lecidea tricolor* (With.), of authors, but erroneously, *vid infra*.

L. pallidus=*Lecanora intumescens* (Rebent),—(specimen from Dcks. Hort. Sic. 23).

L. subfuscus=*Lecanora Parisiensis* (Nyl.),—(a corticole specimen from Dickson).

L. lacustris t. xxxi., f. 4=*Lecanora lacustris* (With.),—(specimen from Griffith).

L. pallescens=*Lecanora subcarnea* (Ach.),—(specimen from Dickson), and =*Lecanora parella* (L.),—(specimen from Relhan), —also =*Lecanora chlorona* (Ach.),—(specimen from Griffith).

L. pezizoides=*Pannularia nebulosa* (Hffm.),—(specimens from Relhan and Griffith).

L. hypnorum=*Lecanora (Psoroma) hypnorum* (Hffm.),—(specimen from Dickson), also =*Pannaria brunnea* (Sw.),—(specimens from Griffith and R. Brown).

L. frigidus=*Lecanora tartarea* var. *frigida* (L.),—(specimens from Dickson, Griffith, and R. Brown).

L. cupularis=*Pertusaria carneopallida* (Nyl.),—(corticole specimen from Griffith), and =*Lecidea cupularis* (Ehrh.),—(saxicole specimen from Griffith). The former of these is evidently the plant intended.

L. crenularius t. xxxi., f. 5=*Lecanora ferruginea* f. *crenularia* (With.),—(specimens from Griffith and Isle of Wight).

L. exanthematicus=*Lecidea exanthematica* (Sw.),—(specimen from Griffith), and also another from same=*Lecidea cupularis* (young state).

L. marmoreus=*Lecidea cupularis* (Ehrh.),—(specimens from Dickson and Griffith, that from the latter being s.n. *Lichen tricolor* on stone).

L. tricolor t. xxxi., f. 6=*Lecidea querceti* (Nyl.),—(specimen from Griffith, original and that depicted in tab., bearing on the label “nondescript.”) Along with it another specimen from Griffith s.n. *tricolor*=*Lecidea carneola*, (Ach.), with *Hysterium pulicare*, Pers., on the same piece of bark, which very singularly was regarded by him as an old state of the plant, cfr. Bot. Arr. Ed. 3, iv., p. 23.

L. tartareus=*Lecanora tartarea* (L.),—(specimens from Dickson and Griffith).

L. fusco-luteus=*Lecidea fuscolutea* (Dcks.),—(specimens from Dcks. Hort. Sic. 25*, and from R. Brown, who rightly observes that “Dickson's account of the scutellæ is not accurate”).

L. cerinus=*Lecanora cerina* (Ehrh.),—(specimens from Griffith and at Edgbaston Park).

L. quadricolor=*Lecidea decolorans* (Flk.),—(specimen from Dickson).

L. upsaliensis=*Lecanora tartarea* var. *frigida* (L.),—(specimen from Dickson, concerning which Griffith observes—“Is this distinct from the specimens in division 70?” i.e., *Lichen frigidus*.

Upsaliensis of the older British authors is only a more spinulose state of *frigida*).

L. byssinus. Of this there is no specimen.

L. flavicans=*Lecanora (Placodium) murorum* var. *dissidens*, Nyl.—(specimens from Dickson s.n. *Lichen flavescens*).

L. luteus=*Lecidea lutea* (Dcks.),—(a fragmentary specimen from Dickson).

L. rimosus=*Lecidea rimosa* (Dcks.),—specimen from Dickson.

(4) With both *Tubercles* and *Saucers*.

L. Psora=*Physcia cæsia* (Hffm.),—(specimens from Griffith; fertile).

L. gelidus=*Lecanora (Placopsis) gelida* (L.),—(specimens from Griffith, R. Brown, and Dcks. Hort. Sic. 25).

L. decipiens=*Lecidea decipiens* (Ehrh.),—(specimens from Dcks. Hort. Sic. 25, from Relhan s.n. *Lichen stellatus* and others from Portugal).

L. lentigerus=*Lecanora (Squamaria) lentigera* (Webr.),—(specimens from Dickson, Relhan, and from Portugal).

L. candelarius=*Lecanora citrina* (Ach.),—(specimen from Griffith), and=*Lecanora vitellina* (Ehrh.),—(fragmentary specimen from Relhan).

C. *Crustaceous, tiled, spreading, fixed.*

L. leucophæus=*Lecidea syncomista* (Flk.),—(specimen from Griffith; no doubt also Dickson's plant).

L. obscurus=*Physcia aquila* (Ach.),—(specimens from Griffith and from Dickson, also Hort. Sic. 25).

L. luridus=*Lecidea lurida* (Sw.),—(specimens from Griffith, fertile, and from R. Brown sterile).

L. multifidus=*Parmelia incurva* (Pers.),—(specimen from Dickson with young apothecia).

L. cartilagineus=*Squamaria crassa* (Huds.),—(specimens from Relhan, Robson, and Dickson, also Hort. Sic. 24).

L. muralis=*Lecanora (Squamaria) saxicola* (Poll.),—(specimens from Dickson, Relhan, and Griffith).

D. *Somewhat crustaceous, leaf-like, tiled, loose.*

L. fahlunensis=*Platysma Fahlunense* (L.), (specimen from Dickson), and=*Platysma commixtum* (Nyl.),—(specimens from R. Brown and Griffith; also Dcks. Hort. Sic., 23).

L. squamatus=*Lecanora cervina* (Pers.),—(specimen from Griffith, and evidently the plant intended), and also=*Lecidea lurida* (Sw.),—(specimens from Dcks. Hort. Sic. 25).

L. ciliatus=*Physcia ulothrix* (Ach.),—(saxicole specimen from Dickson).

L. stygius = *Parmelia stygia* (L.),—(sterile specimen from Dickson), and also = *Parmelia alpicola* Fr. fil.,—(specimens from Dcks. Hort. Sic. 25*).

L. stellaris = *Physcia stellaris* (L.),—(specimens from Relhan, Dickson, and at Edgbaston Park).

Var. 2 = *Physcia pulverulenta* (Schreb.),—(specimen from Griffith).

Var. 3 = *Physcia pulverulenta* var. *renusta* (Ach.),—(specimen from Edgbaston Park).

Var. 4 = *Physcia ulothrix* (Ach.),—(specimen from Griffith).

L. tiliaceus = *Parmelia tiliacea* (Hffm.),—(a small fertile specimen from Dickson).

L. diffusus = *Platysma diffusum* (Webr.),—(specimen from Dcks. Hort. Sic. 23).

L. physodes = *Parmelia physodes* (L.) typical,—(a fertile specimen from Dickson, also one from Portugal).

L. centrifugus = *Parmelia conspersa* (Ehrh.),—(a fertile specimen from Dickson).

L. carnosus = *Pannularia carnosa* (Dcks.),—(fertile specimens from Dickson).

L. saxatilis = *Parmelia saxatilis* (L.) typical,—(specimens from Dickson, one of which is fertile).

Var. 2. Of this there is no specimen.

L. fulvus. Of this there is no specimen.

L. omphalodes = *Parmelia omphalodes* (L.),—(fertile specimens from Relhan).

L. parietinus = *Physcia parietina* (L.) typical,—(specimens from Dickson and Relhan).

L. marginalis = *Collema melænum*, (Ach)., f. *marginale* (Huds.),—(specimen from Relhan), and = *C. melænum* typical,—(specimen from Dickson), also = *Collema multipartitum* (Sm.),—(specimen from Griffith).

L. olivaceus = *Parmelia exasperata* (Ach.),—(fertile specimens from Dickson), and = **Parmelia Delisei* (Dub.),—(specimen from Griffith).

Vars. 2 and 3. Of these there are no specimens.

E. *Somewhat crustaceous, cup-bearing.*

L. foliaceus = *Cladonia alcicornis* (Lghft.),—(specimen from Relhan).

Var. 2. Of this there is no specimen.

L. pyxidatus = *Cladonia pyxidata* (L.), f. *simplex* (Roth.),—(sterile specimens).

Vars. 2, 3, and 4. Of these there are no specimens.

SPIROGYRA ORTHOSPIRA, Nag.

This interesting species is described at p. 87 of "Fresh Water Algæ," and at that time it was stated that it had only been found in Ireland. We have now to record its occurrence in a pool at Fairsted, Essex, where it was collected by Mr. E. G. Varenne, on the 2nd June, 1883, with the mature zygospores.

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Grevillea,

A QUARTERLY RECORD OF CRYPTOGAMIC BOTANY
AND ITS LITERATURE.

NEW BRITISH FUNGI.

(Continued from p. 44.)

The following species are enumerated in a communication by Messrs. Berkeley and Broome to the "Annals of Natural History," for Dec., 1883 :—

Agaricus (Lepiota) lichenophorus, *B. & Br. Linn. Journ. xi.*, p. 500,
Lepiota flammula, *Gillet. Hymen. France.*

Description is given in the Reprint of the "Handbook," at the end of this number.

Agaricus (Lepiota) illinitus, *Fr. Hym. Eur.* 39.

Penzance (J. Ralfs). Description also as above.

Agaricus (Tricholoma) oreinus, *Fl. Syst. Myc.* p. 52. *Cooke Illus.* t. 218b.

Agaricus (Tricholoma) atrocinereus, *Pers. Syn.* 348. *Cooke Illus.* t. 52a. *Grevillea VIII.*, p. 73.

Agaricus (Clitocybe) cyanophaeus, *Fr. Hym. Eur.* 82, var. **Pengellei**, *B. & Br.* *Cooke Illus.* t. 264.

Pileus compact, convex, then plane, obtuse, smooth, fuscous, becoming blue ; stem solid, smooth, attenuated from the base, when young bluish, apex abruptly white ; gills very decurrent, crowded, violet, becoming pallid.

In woods. Cornwall.

"It is possible that this form may be specifically distinct ; but though it differs so much from the figure given by Gonnerman and Rabenhorst, the characters answer so well to those which are given in *Hym. Eur.* that we do not at present consider it distinct. It occurred on two occasions ; the abrupt white apex of the stem is very remarkable."—*B. & Br.*

Agaricus (Clitocybe) rivulosus, *Pers. Syn.* 369. var. **neptuneus**, *Batsch.* f. 115. *Cooke Illus.* t. 200b, vide *Grevillea VII.*, p. 127.

On dry mountain pastures near the sea.

Agaricus (Collybia) oedematopus, *Schæff.* t. 259.

"The specimens were in a very early stage, and the identification requires confirmation."

Agaricus (Collybia) ozes, Fr. Hym. Eur. 125.

Strong scented. Pileus rather fleshy, campanulate, then plane, umbonate, naked, smooth, hygrophanous, margin striate, stem medullate then fistulose, finely striate, slender, fragile, somewhat flexuous, apex mealy; gills adfixed, crowded, cinereous, then sooty-olive.

On pine leaves.

Pileus 1 in. and more, when moist cinereous-fuscous, when dry pale clay-coloured. Stem 2½-4 in. long, 1 line thick.

Agaricus (Mycena) metatus, Fr. Hym. Eur. Grevillea IV., 168. Cooke Illus. t. 238.**Agaricus (Mycena) pullatus**, Berk. & Cooke Illus. t. 237. Grevillea XI., 69.

Penzance. "A distinct species."

Agaricus (Omphalia) telmatiaeus, Berk. & Cooke Illus. t. 240. **Ag. africatus**, Berk. (not Fries.)

On Sphagnum.

Agaricus (Pleurotus) acerinus, Fr. Hym. Eur. 175. Grevillea XI., 155. Cooke Illus. t. 291.

On ash, near Morpeth.

Agaricus (Pleurotus) limpidus, Fr. Hym. Eur. 177. Grevillea X., 149. Cooke Illus. t. 276b.

On decaying wood. Penzance.

Agaricus (Pleurotus) hypnophilus, Fr. Hym. Eur. 181. Cooke Handbook, No. 135. Illus. t. 212c.

On moss.

Agaricus (Leptonia) asprellus, Fr. Hym. Eur. 205. Cooke Handbook, No. 280.

Amongst grass. Coed Coch.

Agaricus (Eccilia) griseo-rubellus, Fr. Hym. Eur. 212.

Pileus membranaceous, deeply umbilicate, at length plane, striate, hygrophanous, umber then hoary, stem fistulose, smooth, paler; gills slightly decurrent, rather distant, pallid, then flesh-coloured.

In pine woods.

Stem 2 in. long. Pileus 1 in. and more broad.

Agaricus (Hebeloma) magnimamma, Fr. Hym. Eur. 243.

Pileus with a fleshy disc, extended in a mammiform umbo, convexo-plane, naked, brick-red, growing pale, stem obsoletely fistulose, equal, smooth, naked, pale glistening; gills obtusely adnate, crowded, pallid, then ferruginous.

On the ground, amongst grass.

Circumference of the pileus thin, not hygrophanous.

Agaricus (Galera) tener, Schaff. var. **pubescens**, Fr.

According to Fries this is *A. pilosellus*, Pers.

Agaricus (Tubaria) stagninus, Fr. Hym. Eur. 273.

Pileus submembranaceous, conical, then convex, obtuse, rather viscid and striate when moist, ferruginous-brown, when dry even, subochraceous, furnished about the margin with floccose, concentric white scales, stem fistulose, rubiginous-brown, gills decurrent, very broad, ferruginous.

In marshy ground. Sibbertoft. A dwarf form, about the size of *A. inquinatus*.

Agaricus (Crepidotus) appplanatus, Pers. Obs. I., p. 8, t. 5. f. 3.

Pileus rather fleshy, soft, fragile, plane, reniform, or wedge-shaped, whitish, ending behind in a *very short white tomentose stem*; gills determinate, crowded, linear; whitish, then pale cinnamon.—Fr. Hym. Eur. 275.

On decaying wood. Penzance.

Agaricus (Crepidotus) haustellaris, Fr. Hym. Eur. 276. Cooke Handbook No. 354.

With the last.

Agaricus (Crepidotus) Ralfsii, B. & Br. Ann. Nat. Hist. (1883), p. 372, No. 2008.

Pileus semi-reflexed, yellow, delicately hispid or chaffy, margin involute, flat, fixed by cottony flocci, stem obsolete, gills ventricose, clay-coloured, margin whitish.

On decaying wood. Penzance.

Agaricus (Psilocybe) subericæus, Fr. Icon. No. 367, t. 136, f. 2.
= **A. clivularum**, Letell.

Pileus rather fleshy, convex, then plane, even, smooth, tawny; stem fistulose, smooth, becoming yellowish, gills sinuate, adnexed, broad, pallid, then blackish.

In fields, near Chester.

Stem 1½-2 in. Pileus 2 in. broad or more.

"*Ag. clivularum*, Letell, is referred by Fries to his *Ag. ericæus*, but it is clearly rather his *Ag. subericæus*."

Agaricus (Psathyra) conopileus, Fr. Hym. Eur. 304. Cooke Handbook, No. 422.

"In various places amongst grass, and in garden borders, varying when fresh in the depth of the brown tint. Near Peterborough it occurred last year with a distinct bulb."—B. & Br.

Agaricus (Psathyra) glareosa, B. & Br. Ann. Nat. Hist. 1883, p. 372, No. 2011.

Pileus campanulate, obtuse or umbonate, grey, apex pallid chestnut, striate, floccose with shining atoms; stem fistulose, invested with white fibrils, brown, gills broadly adnate, umber.

On gravelly soil, after wet weather. June.

"Pileus $\frac{1}{2}$ in. across, very minutely tomentose; stem 1-2 in. high, 1 line thick; gills broad behind. Spores black. Flesh brown, especially close to the gills."

Agaricus (Psathyra) pellospermus, Bull. t. 561.

"We have certainly had this year the true plant of Bulliard, which seems to us distinct from *A. corrugis*."

Agaricus (Psathyrella) crenatus, Fr. Hym. Eur., 315.

Pileus membranaceous, hemispherical, sulcate, atomate, hygrophanous, margin crenate, stem slightly curved, fragile, smooth, whitish, striate above, and mealy; gills adnate, somewhat ventricose, from yellowish brown becoming black.

On grassy ground. Penzance.

Coprinus floculosus, Fr. Hym. Eur. 315. Cooke Handbook, No. 461.

Coprinus cothurnatus, *Godey in Gillet, Planches, Sup., 3 series.*

[We have as yet seen no published diagnosis of this species.]
Penzance.

Stem about 2in. long ; pileus about 1in. broad. Yellowish.

Cortinarius (Telamonia) scutulatus, *Fr. Hym. Eur. 377. Grevillea VIII. 77.*

"The form figured by Quelet, and not that by Fries in his 'Icones.'"

Cortinarius (Telamonia) stemmatus, *Fr. Hym. Eur. 385.*

Pileus rather fleshy, convex, then plane, obtuse, *bright bay*, *about the margin hoary silky*, when dry becoming paler, fibrillose ; stem somewhat fistulose, floccose, squamose, and annulate, ferruginous bay ; gills adnate, crowded, bay-brown.

In moist woods. Lyne, Sussex.

"The ringless form mentioned by Fries in the text."

Cortinarius (Hygrocybe) germanus, *Fr. Hym. Eur. 397.*

Pileus almost membranaceous, conical, then expanded, obtusely umbonate, rather silky, *fragile*, even, brownish (clay-coloured) ; stem somewhat fistulose, thin, equal, smooth, *lilac*, *then becoming pale*, gills adnate, rather distant, broad, watery cinnamon.

In beech woods. Coed Coch.

Stem 3in. long, 1 line thick. Pileus 1in.

Hygrophorus glutinifer, *Fr. Hym. Eur. 408.*

Pileus fleshy, convex, then expanded, *with a glutinous pellicle*, *rufescent*, disc *rugose-punctate*, stem *stuffed*, *ventricose upwards*, with a *viscid veil*, of the same colour, apex whitish squamulose, gills arched, decurrent, rather thick, white.

In woods. Penzance.

"Probably the same with the little known *Ag. aromaticus*, Sow."

Hygrophorus vitellinus, *Fr. Hym. Eur. 417.*

Pileus membranaceous, disc rather fleshy, smooth, viscid, *lemon-yellow*, *whitish when dry*, margin *pliate-striate*, stem fistulose, fragile, pale yellow, gills decurrent, rather distant, egg yellow.

In fields, &c. Penzance.

Lactarius hysginus, *Fr. Hym. Eur. 426. Cooke Handbook, No. 590.*

Near Morpeth.

Lentinus lepideus, *Fr. Hym. Eur. 481. Cooke Handbook, No. 684.*

"In an old hollow elm. The veil still adhering to the edge of the pileus. Specimens found before in this country have been on imported pine wood. The proper name is '*lapideus*,' '*lepidus*' inaccurately."—*B. & Br.*

[We have had it, at least two or three times, on indigenous wood.—*Ed. Grev.*]

Polyporus (Pleuropus) petalooides, *Fr. Hym. Eur. 536.*

Pileus somewhat membranaceous, spathulate, *rugose*, *zoneless*, *chestnut-brown*, flaccid when moist ; stem lateral, ascending, compressed, smooth, rootless, whitish, *adnate by a dilated scutate base* ; pores decurrent, very short, small, white.

"On an old stump. Sibbertoft. A very interesting addition to our mycology, and of great beauty."—*B. & Br.*

Polyporus (Placodermei) fomentarius, *Fr.*, var. **pomaceus**, *Pers.*
Syn. 531.

"The common form on willow, which is very hard. Occurs also in Cornwall. This, however, is referred by Fries to *P. igniarius*, the true distinction of which species depends on the difference of the colour of the spores, which are dark and ferruginous, and not white as in *P. igniarius* and *P. dryadeus*."—*B. & Br.*

Polyporus (Inodermei) gossypinus, *Fr. Hym. Eur.* 566.

White. Pileus coriaceous, effused and reflexed, flattened, tomentose, zoneless, substance white, pores at the first dædaleoid, then angular, pale *cinerous*, dissepiments thin, toothed.—*Leveille Ann. Sci. Nat.* 1843, p. 124.

On an old stump of *Ulex*. Sibbertoft.

"Distinguished at once by its dædaleoid pores. We hoped to get a large supply of specimens this year, but the same stump, which was accidentally trodden down, has produced instead *P. fumosus* in great abundance."—*B. & Br.*

Polyporus (Resupinatus) Læstadii, *Fr. & Berk.*

Substance white, pores bright lemon-yellow, hymenium here and there tuberculate.—*Ann. Nat. Hist.* 1883, p. 373, No. 2025.

On the underside of a deal board in a hothouse.

"Colour bright persistent yellow, very beautiful. We have no doubt that our plant is what is mentioned by Fries (*Hym. Eur.* 575). It forms confluent patches many inches in length."—*B. & Br.*

Hymenochæte rubiginosa, *Lev.* **Stereum rubiginosum**, *Fr. Hym. Eur.* 641.

On decaying wood.

"A very different species from *Stereum tabacinum*."

Stereum stratosum, *B. & Br. Ann. Nat. Hist.* (1883), p. 374, No. 2027.

Effused, bright ochraceous white, smooth, becoming yellowish, here and there rugose, substance pallid, stratose ; the strata at length separating.

On bark. Penzance.

In addition, those authors propose a new genus for the reception of *Agaricus (Clitocybe) laccatus* and its allies, under the name of—

LACCARIA, *B. & Br.*

Substance tough, hymenium confluent with the stem ; gills thick, powdered with the white globose spores.

"This is clearly quite as distinct from the genus *Agaricus* as *Russula* and *Lactarius*, and cannot with any justice be included in the sub-genus *Clitocybe*. We have several very distinct forms from Ceylon, besides our own *Ag. laccatus*, *Ag. bellus*, and one or two continental species. The amethyst-coloured form usually referred to *Ag. laccatus* is probably distinct. We have long seen the necessity of this separation, but were unwilling to add to the numerous genera already separated from *Agaricus*, with greater or less reason."—*B. & Br.*

The species which would come under the genus proposed by Messrs. Berkeley and Broome would be—

- Laccaria laccata** (*Scop.*)
 - Laccaria tortilis** (*Bolt.*)
 - Laccaria amethystina** (*Bolt.*)
 - Laccaria bella** (*Pers.*)
 - Laccaria spodophora** (*B. & Br.*)
 - Laccaria sublaccata** (*B. & Br.*)
 - Laccaria porphyrodes** (*B. & Br.*)
 - Laccaria vinosofusca** (*B. & Br.*)
-

ON THE LICHENS IN DR. WITHERING'S HERBARIUM.

BY THE REV. J. M. CROMBIE, F.L.S.

(Concluded from p. 62.)

L. fimbriatus = *Cladonia fimbriata* (Hffm.),—(sterile specimens).
Vars. 2 and 3. Of these there are no specimens.

L. gracilis = *Cladonia gracilis* (*chordalis* Flk.),—(sparingly fertile specimens).

L. radiatus = * (*Cladonia fibula*, var. *radiata* (Schreb.),—(sterile specimens).

L. ventricosus. Of this there is no specimen.

L. deformis. Of this there is no specimen.

L. filiformis = *Cladonia macilenta* (Hffm.) f. *filiformis*,—(specimen from Relhan, sparingly fertile).

Var. 2. Of this there is no specimen.

L. cocciferus = *Cladonia coccifera* (L.),—(sterile specimens) and = *Cl. Floerkeana* (fertile specimens from Dartmoor).

L. cornutus = *Cladonia macilenta*, a state approaching to f. *clarata* (Ach.),—(specimen from Griffith) and = f. *scolecina* (Ach.),—(specimen from Edgbaston Park pales; substerile).

L. digitatus = *Cladonia macilenta* var. *coronata* (Ach.),—(specimen from Relhan). Along with this is *Cl. squamosa* (Hffm.),—(specimen from Dickson with dark-brown apothecia).

L. cornucopioides = *Cladonia coccifera* f. *cornucopioides* (Ach),—(fertile specimens).

F. Somewhat crustaceous, Shrub-like.

L. siliquosus = *Ramalina cuspidata* (Ach.),—(specimens from Dickson and R. Brown).

L. globiferus = *Sphaerophoron coralloides* (Pers.),—(fertile specimens from Dickson and Griffith).

L. fragilis = *Sphaerophoron compressum* (Ach.),—(specimens from Deks. Hort. Sic. 23).

L. vermicularis=*Thamnolia vermicularis* (Sw.),—(specimens from Dickson and R. Brown).

L. rangiferinus=*Cladina rangiferina* (L.),—(a fertile specimen), and along with it a specimen marked *L. rangiferinus* (*alpestris*)=*Cl. sylvatica* var. *alpestris* (L.); sterile.

Var. 2=*Cladonia pungens*, Flk. and *f. foliosa*, Flk. (sterile specimens).

L. subulatus=*Cladonia furcata* (*subulata* L.),—(a fertile specimen).

L. Roccella=*Roccella tinctoria* (DC.),—(a small specimen very sparingly fertile from Dickson, who rightly adds “I fear not English”).

L. tristis=*Parmelia tristis* (Webr.),—(specimens from Relhan and Griffith, also from Dickson Hort. Sic. 25 s. n. *Lichen radiatus*).

L. hispidus=*Cetraria aculeata* f. *hispida* (Lghft.),—(specimens from Relhan, Dickson and Griffith).

L. uncialis=*Cladonia uncialis* (L.),—(a sterile specimen).

Var. 2=*f. turgesceus* (Fr.),—(sterile, from Birmingham Heath).

L. paschalalis=*Stereocaulon coralloides* (Fr.),—(specimens from Dcks. Hort. Sic. 24, sterile).

L. spinosus=*Cladonia furcata* var. *racemosa* f. *spinosa* (Lghft.), (sterile specimen from Dickson).

L. papillaria=*Pycnothelia papillaria* (Ehrh.),—(sterile specimen from Dickson, with very short podetia).

L. furcata=*Cladonia furcata* var. *racemosa* (Hffm.),—(fertile specimen from Dickson).

Var. 2=*Cl. racemosa* f. *recurva* (Hffm.),—(substerile specimens).

L. muscicola=*Leptogium muscicola* (Sw.),—(specimens from Dickson, fertile, and from Griffith, sterile).

G. Somewhat crustaceous, Thread-like.

L. ochroleucus=*Alectoria sarmentosa*, var. *cincinnata* (Fr.),—(specimen from R. Brown, s. n. *L. ochroleucus* who observes that “no accurate account has yet been given of this remarkable plant”).

L. jubatus=*Alectoria jubata* (prolixa, Ach.),—(sterile specimen from Griffith). Mr Gough's specimen from the gallery of a copper mine=*Ozonium aureum*, Fr.).

L. hirtus=*Usnea hirta* (L.),—(sterile specimens from Dickson) also a specimen from Dartmoor=*U. ceratina*, (Ach.), (sterile).

L. chalybeiformis=*Alectoria jubata* var. *chalybeiformis* (L.),—(specimen from Dickson) and=*Alectoria nigricans* (Ach.),—(specimen from Griffith).

L. exilis=*Ephebe pubescens* (L.),—(specimens from Dickson, sterile, and from Griffith, one of which is fertile).

L. lanatus=*Alectoria bicolor* (Ach.),—(specimen from Griffith) and=*Parmelia lanata*, var. *reticulata* (Wulf.),—(specimen from Dickson).

L. pubescens=*Parmelia lanata* var. *reticulata* (Wulf.),—(specimens from R. Brown and Griffith). A specimen from Dickson=*Ephebe pubescens* (L.).

L. articulatus=*Usnea articulata* (L.),—(specimen from Dickson).

Var. 2 *barbatus*=a state with the articulations more slender, —(specimen from Dickson, on the label of which it is called *L. barbatus*, Huds.).

L. vulpinus=*Physcia flavicans* (Sw.),—(specimens from Dickson s. n. *L. vulpinus* and from Griffith, one of which is the true *Chlorea vulpina* (L.), but not British).

L. plicatus=*Usnea dasypoga* (Ach.),—(specimens from Dickson and Relhan, sterile), while a specimen from Gough = *U. ceratina*, Ach.

L. floridus=*Usnea florida* (L.),—(specimens from Griffith and from Deks. Hort. Sic. 25).

H. Herbaceous.

L. farinaceus=*Ramalina farinacea* (L.), (a sterile specimen).

Var. 2=f. *phalerata*, (Ach.) (sterile.)

Var. 3=*Ramalina pollinaria* (Westr.), sterile.

L. fuciformis=*Roccella fuciformis* Ach.,—(sterile specimen from Dickson).

L. pinastri=*Platysma pinastri* (Scop.),—(a specimen from Dickson).

L. calicaris=*Ramalina calicaris*, (Hffm.,)—(specimens from Dickson; fertile).

Var. 2=*Ramalina cuspidata* (Ach.), and f. *minor*, Nyl., both sterile.

L. endocarpon=*Endocarpon hepaticum*, (Ach.),—(specimen from Dickson), and f. *trapeziforme* (Zoega)—(specimen from R. Brown).

L. crocatus=*Stictina crocata* (L.),—(specimens from Deks. Hort. Sic. 24*).

L. prunastri=*Evernia prunastri* (L.),—(fertile specimen from Dickson, who observes on the label "not of any English author, it will be in my 4th fasc.", also fertile specimen from Relhan s. n. *Lichen corniculatus*).

Var. 2. Of this there is no specimen.

L. glaucus=*Platysma glaucum* (L.),—(sterile specimens from Dickson).

L. fallax=*Platysma glaucum* f. *fallax* (Webr.),—(a sterile specimen from Dickson).

L. Islandicus = *Cetraria Islandica* (L.),—(specimens from Griffith, sterile, from R. Brown, fertile, and one from Dickson = *f. platyna*, Ach., fertile).

Var. 2 = **Cetraria crispa* (Ach.),—(a sterile specimen from Relhan).

L. pulmonarius = *Sticta pulmonaria* (L.),—(fertile specimens from Griffith and from the New Forest).

L. ciliaris = *Physcia ciliaris* (L.),—(specimens from Relhan, Egbaston Park, and from Dicks. Hort. Sic. 24, all fertile).

Var. 2 = *f. verrucosa* (Ach.).—(from Egbaston Park, “plentiful.”)

L. furfuraceus = *Evernia furfuracea* (L.),—(specimens from Dickson, Relhan, and Robson, fertile, also on trees, Egbaston Park = *f. Scobicina*, Ach., sterile).

L. tenellus = *Physcia stellaris** *tenella* (Scop.),—(a small specimen from Relhan, fertile).

L. fraxineus = *Ramalina fraxinea* (L.),—(fertile specimens).

L. scopulorum = *Ramalina scopulorum* (Retz.),—(fertile specimens from Dickson).

L. Burgessii = *Leptogium Burgessii* (Lghft.),—(specimens from Dicks. Hort. Sic. 24).

L. glomuliferus = *Ricasolia amplissima* (Scop.),—(specimens from Dickson and Griffith).

L. lætevirens = *Ricasolia lætevirens* (Lghft.),—(fertile specimens from Griffith, s. n. *Lichen herbaceus*, Huds.).

L. caperatus = *Parmelia caperata* (L.),—(specimens from Dickson, fertile, and from Relhan, sterile).

L. scrobiculatus = *Stictina scrobiculata* (Scop.),—(sterile specimens from Griffith and Dickson, the latter of whom observes that it is *L. verrucosus*, Huds.).

L. plumbeus = *Coccocarpia plumbea* Pers.,—(specimens from Griffith and from Dicks. Hort. Sic. 24, s. n. *Lichen cærulescens*, and others from the latter, one of which = *Pannaria rubiginosa* (Thunb.), while one from Griffith = *P. rubiginosa*, var. *cnoplea*, Ach.).

L. saturninus = *Leptogium saturninum* (Dcks.),—(sterile specimens from Dickson and R. Brown, also one from the latter = *Leptogium Hildenbrandii* (Garov.).

L. nivalis = *Platysma nivale* (L.),—(specimens from Dickson and R. Brown).

L. endivifolius = *Cladonia endiviaefolia* (Dcks.),—(specimens from Dcks. Hort. Sic. 24*).

L. ampullaceus = *Platysma glaucum* f. *ampullaceum* (L.). Of this there is no specimen, cfr. Bot. Arr. Ed. 3, iv., p. 61).

L. tenuissimus=*Leptogium* (*Homodium*) *tenuissimum* (Dcks.),—(specimen from Dickson, well fruited).

L. membranaceus=*Amphiloma lanuginosum* (Ach.),—(sterile specimen from Dickson).

L. concolor=*Physcia lychnea* (Ach.),—(fertile specimens from Dickson, corticole, and from Relhan, saxicole).

I. Root Central.

L. Jacquinii. Of this there is no specimen.

L. torrefactus=*Gyrophora torrefacta* (Lghft.),—specimens from Dickson and Relhan, the latter s. n. *L. polyrhizos*, Huds.).

L. deustus=*Gyrophora proboscidea* (Ach.),—(fertile specimens from Dickson and Griffith).

L. anthracinus. Of this there is no specimen.

L. polyrhizos=*Gyrophora polyrhiza* (L.),—(sterile specimens from Dickson and Relhan (s. n. *L. velleus*, Huds.), also a specimen from Relhan=f. *luxurians*, Ach.).

L. pustulatus=*Umbilicaria pustulata* (L.),—(sterile specimens from Dickson and Relhan).

L. proboscideus=*Gyrophora cylindrica* (Ach.),—(specimens from Dickson and Griffith), also specimens from R. Brown = f. *denticulata*, Ach.

Var. 2=f. *fimbriata* (Ach.),—(specimen from Griffith).

L. polyphyllus=*Gyrophora polyphylla* (L.),—(specimens from Relhan and Griffith, sterile).

L. miniatus=*Endocarpon miniatum* (Ach.),—(specimens from Dickson, Griffith, and Mr. Threshar; also a specimen from Dickson = var. *complicata*, Ach.).

L. amphibius=*Endocarpon fluvatile*, (D. C.),—(specimen from Griffith) and also = *E. miniatum*, var. *euplocum* (Ach.),—(specimen from Griffith).

L. fluviatilis (*L. aquaticus* on label)=*Endocarpon fluvatile*, (D.C.),—(specimen from Griffith).

K. Foliage Leather-like.

L. fucooides=*Roccella phycopsis* (Ach.),—(a fragmentary and sterile specimen from Dickson).

L. saccatus=*Solorina saccata* (L.),—(specimens from Griffith, Dickson, and Relhan).

L. croceus=*Solorina crocea* (L.),—(sterile specimen from R. Brown).

L. perlatus=*Parmelia perlata* (L.),—(sterile specimen from Relhan), also a specimen from Dickson = *Parmelia perforata* (Wulf.).

L. caninus=*Peltigera canina* (L.),—(fertile specimens from Dickson).

L. polydactylos=*Peltigera polydactyla*, Hffm. and f. *microcarpa* (Ach.),—(specimens from Dickson).

Var. 2=*P. polydactyla* * *hymenina*, (Ach.),—(specimen from Griffith).

L. venosus=*Peltidea venosa* (L.),—(specimens from Dickson and Hort. Sic. 25).

L. apthosus=*Peltidea aphthosa* (L.),—(sterile specimens from Dickson and fertile from Relhan).

L. rufus (*L. rufescens* on label)=*Peltigera rufescens*, (Hffm.),—(fertile specimen from Griffith).

L. fuliginosus=*Stictina fuliginosa* (Huds.),—(sterile specimens from Griffith, one of which marked "male plant"=*Stictina limbata*, Sw.)

L. resupinatus=*Nephromium lusitanicum* (Schær.),—(specimens from Dickson and Griffith).

Var. 2=the same, with the medulla of a deep yellow colour,—(specimen from Griffith).

L. scutatus=*Peltigera scutata* (Dcks.),—(fertile specimens from Dickson).

L. sylvaticus=*Stictina sylvatica* (Huds.),—(specimens from Relhan and Griffith).

Var. 2. Of this there is no specimen.

L. horizontalis=*Peltigera horizontalis* (L.),—(fertile specimens from Dickson).

L. Gelatinous.

L. tremella=*Leptogium lacerum* (Sw.),—(specimens from Relhan and Dickson).

Var. 2. Of this there is no specimen.

Var. 3=var. *pulvinatum* (Hffm.),—(specimen from Griffith).

Var. 4=*Scytonema*, Sp.? (sterile specimen from Griffith).

L. sepincola=*Platysma ulophyllum* (Ach.),—specimen from Dickson).

L. granulatus=*Collema furvum* (Ach.),—(specimen from Dickson), and also=*C. granuliferum*, (Nyl.),—(specimen from Griffith).

L. cochleatus=*Collema flaccidum*, (Ach.),—(sterile specimen from Griffith), and also *Leptogium tremelloides* (L.),—(sterile specimen from Dickson).

L. palmatus=*Leptogium palmatum* (Huds.),—(sterile specimen from Dickson). Along with this a specimen from Griffith marked ?=*Platysma commixtum*, Nyl., old and sterile.

L. nigrescens=*Collema nigrescens* (Huds.),—(fertile specimens from Griffith and from Dcks. Hort. Sic. 22).

L. cristatus=*Collema tenax* var. *coronata*, (Kbr.),—(specimens from Dickson s. n. *L. crispus*, and from Griffith).

L. sinuatus=*Leptogium sinuatum* (Huds.),—(fertile specimens from Dickson and Griffith).

L. fascicularis=*Collema fasciculare* (L.),—(specimen from Dickson), and also=*Leptogium* (*Collemodium*) *microphyllum* (Ach.),—(specimen from Griffith).

L. crispus=*Collema cheileum*, (Ach.),—(fertile specimen from Mr. Woodward).

L. rupestris. Of this there is no specimen.

L. fluviatilis=*Leptogium fluviatile* (Huds.),—(specimens from Griffith, fertile ; from Dickson and R. Brown, sterile).

Sphaeria gregaria=*Arthonia cinnabarina*, var. *Kermesina* (Schær.),—(specimens from Griffith).

SIROSIPHON SAXICOLA (*Næg*).

Filaments minute, curved, variously branched, closely crowded into a thin dark crust or unevenly scattered pulvinuli ; vagina narrow, fuscous ; cellules in single series, growing denser and nucleate with age ; fruit not seen.

On damp rocks, rare ; Ennerdale Lake side, Cumberland, 1881.

This lichen grows upon damp rocks, or rocks down which water trickles rather than flows ; its colour when wet is dark olive, when dry black. It is sparsely scattered, more thickly clustered in some spots than others, and looks like a thin dark plush upon the stone. With a lens, the filaments can be distinguished entangled and depressed, and under the microscope they appear variously branched, somewhat mammillose and obtuse. The cellules are defined, roundish at the apices of the ramuli, but becoming oval, oblong or quadrate, as they are crowded down into the older parts of the filaments, where they are frequently double. The ramuli are merely lateral developments of the central cellules, and these run out into branches not by bursting, but by diverting the vagina.

Dr. Nylander has examined this plant and pronounced it the species named, and we know of no previous record in Great Britain of which it is a synonym. How far it may differ from *Scytonema minutum* Ag. (Mackay's Fl. Hibernica, p. 236) we cannot say, as we have not seen the latter.

W. JOHNSON.

Hartlepool.

NOTES ON HYPOCREACEÆ.

By M. C. COOKE.

It is not our intention to proceed in detail with observations on some of the remaining groups of Saccardo's "Sylloge," since such a course would involve a considerable amount of labour, and no small expenditure of space. It is very generally known what our views are with regard to such a carpological arrangement, and therefore these need not to be repeated at every step. We shall therefore content ourselves with giving the diagnoses of additional species ; and probably, in some form or other, print our method of grouping the species, as classed in our own Herbarium, and that of the Royal Gardens at Kew.

One point must, however, be noticed, in passing, with regard to the genus *Nectria*. We have long considered that, inasmuch as cæspitose species are kept generically distinct from those in which the perithecia are scattered, in other sections of *Pyrenomycetes*, so in this genus they should be separated, retaining the old name of *Nectria* for the cæspitose species, and adopting one of Saccardo's subgeneric names, viz., that of *Dialonectria*, for the discrete species. Other divergencies from the method adopted in the work above named we must leave to justify themselves. Those who hold views similar to ourselves will appreciate our endeavour to bring the two systems into working order, so that, whilst maintaining our opinions, we may still turn the labours of Professor Saccardo to the best account that we can.

We have preferred to supplement *Hypocreaceæ* by a subdivision into three sub-families : (i.) HYPOCREOIDEÆ for the genera of compositæ forms ; (ii.) NECTRIÆ for the simple or cæspitose groups of true *Nectria* allies ; and (iii.) PSEUDO-NECTRIÆ for those aberrant genera, which we do not feel justified in placing in the second sub-family.

We enter upon this method with a desire to adopt all that we can, with a good conscience, accept of the scheme of the "Sylloge," and to reject such as we may not approve, without acrimonious and unnecessary discussion.

***Claviceps Wilsoni*, Cooke.**

Mycelio sclerocioideo, cylindrico, subarcuato, atropurpureo, nigrescente. Stromatibus solitariis, vel binatis, vel ternatis, simplicibus, carnosis, albo-flavidis ; clavula elongato-clavata, flavo-carnea, e peritheciis laxis subliberis prominentibus asperula (peri. ·4 x ·18 mm.) ; stipitis flexuoso, abbreviato, cylindrico, primo albido. Ascis angustissimis, linearibus ; sporidiis filiformibus (·14 mm. long).

On ergot of *Glyceria fluitans*. (A. S. Wilson.)

Differs from all other species in the elongated clavate capitulum and in the lax manner in which the perithecia are produced.

Cordyceps typhulæformis, Berk. & Cooke in Herb. Berk. No. 8255.

Stromate clavato, gracili, carneo-rubro, in stipitem æqualem attenuato, carnosso-molli (circa semiuncialis). Peritheciis sub prominulis, ascis cylindraceis. Sporidiis filiformibus.

On larvæ? Java.

5051. **Cordyceps sinensis**, Berk.

Ascis cylindraceis, apice capitatis. Sporidiis filiformibus, in fragmentis dissilientibus.

5053. **Cordyceps dipterigena**, B. & Br.

Ascis linearibus, subflexuosis. Sporidiis filiformibus, articulis brevibus, subquadratis.

Cordyceps albida, Berk. & Curt. in Herb. Berk. No. 8269.

Similar to conidia of *C. sphingum*, but smaller, tips somewhat clavate. Too imperfectly developed for description.

On crickets. Cuba.

Glaziella vesiculosa, Berk. & Warm. (Sacc. Syll. No. 5075.)

Subglobosa, ochreo-flavida, vesiculosa, magna (3-4 in. diam.), glaber, hinc illic rugulosa. Contexta carnosa. Peritheciis periphericis, immersis, pallidis, immaturis.

Brazil. Glaziou No. 8526.

4988. **Hypocrea scutellæformis**, B. & C.

Hypocrea Ravenelii, B. in Raven. Fungi Car.

Are two names for the same species.

4901. **Hypocrea ochroleuca**, B. & Rav.

Sporidiorum articulis ('006 mm.) hyalinis.

4904. **Hypocrea armeniaca**, B. & C.

Sporidiorum articulis globosis hyalinis ('004 mm.).

4905. **Hypocrea polyporoidea**, B. & C.

Sporidiorum articulis globosis hyalinis ('004 mm.).

4906. **Hypocrea saccharina**, B. & C.

Sporidiorum articulis globosis hyalinis ('005 mm.).

4907. **Hypocrea insignis**, B. & C.

Sporidiorum articulis subglobosis, hyalinis ('0035 mm.).

4909. **Hypocrea sulphurea**, Schwein.

Sporidiorum articulis globosis hyalinis ('005 mm.).

4915. **Hypocrea Stereorum**, Schwein.

Sporidiorum articulis subglobosis hyalinis.

4916. **Hypocrea peltata**, Jungh.

Sporidiorum articulis globosis hyalinis.

Hypocrea umbrina, Cooke. Hypocrea gelatinosa, var. umbrina, Cesati.

Convexa, sublobata (1-2 c.m. lata) umbrina, leniter rugulosa, ostiolis punctiformibus obscurioribus ornata. Ascis cylindraceis. Sporidiis in cellulis 16 globosis dissilientibus, hyalinis '004 mm.

On rotten wood. Ceylon. (Cesati.)

Hypocrea Cesatiana, Cooke. Hypocrea multiformis, Cesati.

Applanata, rubro-fusca, subelliptica, vel irregularis, margine flava. Ostiolis vix distinctis. Ascis cylindraceis. Sporidiis in cellulis 16 globosis hyalinis dissilientibus ('005 mm. diam.).

On wood. Sarawak. (Cesati No. 7.)

Hypocrea subrufa, Berk. & Cooke in *Herb. Berk.*

Gregaria vel sparsa, superficialis, hemisphaerico-depressa, subdiscoida, rufa (1-2 mm. diam.) ostiolis minimis obscurioribus. Ascis cylindraceis. Sporidiorum articulis sub-aequalibus, globosis, hyalinis (·003 mm.).

On branches. Neilgherries, India.—(E.C.B.)

Hypocrea Karsteniana, Niessl. in *Rehm. Acomyceten No. 678.* H. citrina, f. fungicola, *Karst. Myc. Fenn. II.*, 204.

Sporidiorum articulis ovalibus (·003-·0035 mm.).

Hypocrea rugulosa, Berk. & Cooke in *Herb. Berk.*

Gregaria, superficialis, pulvinata vel hemispherica, rotundata, siccus rugulosa, carnosula, fusco-nigrescens (1-2 mm.) Stomatibus laxe adhaerentibus, nudis, intus fuscis. Ostiolis vix prominulis. Ascis cylindraceis (circa ·08 mm. long). Sporidiorum articulis aequalibus, quadrato-globosis, fuligineis (·004-·0042 mm.).

On rotten wood. Neilgherries, India.—(E.C.B.)

Var. major.

Stomatibus minus rugulosis (3-4 mm.). Articulis sporidiorum majoribus (·005 mm. diam.)

On bark of trees. Neilgherries, India.—(E.C.B.)

Hypocrea undulata, Berk. & Cooke in *Herb. Berk.*

Effusa, pallido-ochracea, subtenuis, undulata, margine pallidiore tomentoso ; ostiolis papillatis, numerosis, fusco-atris. Ascis cylindraceis ; sporidiis ellipticis, diu continuis, demum uniseptatis, utrinque rotundatis, hyalinis (·012 x ·005 mm.).

On rotten wood. Neilgherries, India.—(E.C.B.)

Hypocrea Nilgherrensis, Berk. & Cooke in *Herb. Berk.*

Tenuis, effusa (1 c.m. lata) convexo-applanata, ochraceo-flavida, centro fusca, margine pallidiore sterili ; ostiolis papillatis, fuscis. Ascis breviter cylindraceis (·05 mm. longis) octosporis ; sporidiis ovalibus vel subglobosis, continuis, hyalinis (·005 x ·006 mm.).

On bark. Neilgherries, India.—(E.C.B. No. 59).

Hypocrea colliculosa, Fries. in *Herb. Berk.*

Pallida, effusa, planiuscula, tomentosa ($\frac{1}{2}$ -1 inch lata) peritheciis convexis, magnis (1 mm. diam.) ostiolis papillatis, atris. Ascis cylindraceis. Sporidiorum articulis subglobosis (·005 mm.) hyalinis.

On old *Polyporus*. Sweden.—(E. Fries).

Hypocrea consimilis, Ellis N. Amer. *Fungi No. 158.*

Orcicularis, rufa, convexa, subcorrugata, sparsa vel aggregata, carnosa (1-2 lin.) Ascis cylindraceis, octosporis. Sporidiis ellipticis, continuis, hyalinis (·01 x ·004 mm.).

On decorticated *Azalea viscosa*.

Hypocrea Carteri, Berk. & Cooke in *Herb. Berk. No. 8318.*

Effusa, indeterminata ($\frac{1}{4}$ -1 in. diam.) ochracea, undulata, margine tenui. Ostiolis punctiformibus, fuscis. Peritheciis subglobosis, immersis. Ascis subcylindricis. Sporidiis ellipticis, uniseptatis, hyalinis (·015 x ·005 mm.).

On bark. Bombay.—(H. J. Carter).

Hypocrea Fendleri, Berk. & Curt. in Herb. Berk. 8325.

Sub-effusa, plana, demum atro-fusca, margine obtuso, contextu albo. Peritheciis immersis, subglobosis. Ascis cylindraceis, octosporis. Sporidiis ellipticis, hyalinis (.005-.006 mm. long).

On bark. Venezuela.

In all the three species, Nos. 4895, 4896, 4897, we believe that the joints of sporidia are sixteen, and *not* eight.

Hypomyces apiosporus, Cooke.

Effusa, pallida, tenuis. Peritheciis semi-immersis, leniter papillatis (sicco melleis) ostiolis obscuriore. Ascis cylindraceis, octosporis. Sporidiis lanceolatis, supra apiculatis, infra rotundatis, totius asperulatis, continuis (apiculâ exceptâ) flavidis (.018 × .0065 mm.).

On *Clavaria pistillaris* (?). New York, U.S.—(W.R.G.)

Hypomyces spadiceus, Fries. in Herb. Berk.

Tenuis, effusa, spadicea. Peritheciis parvulis (.15-.2 mm. diam.) congestis, semi-immersis, ostiolis papillato, concolore. Ascis cylindraceis. Sporidiis arcte lanceolatis, uniseptatis, hyalinis (.016-.02 × .003-.0035 mm.).

On Agarics (?) Sweden.—(E. Fries).

Sporidia acute but not apiculate. The sporidia apparently not well matured.

Hypomyces ater, Fries. Summa Veg. Scan. 564.

Effusa, tenuis, atra; peritheciis glabris, semi-immersis, ostiolo conico, concolore. Ascis cylindraceis. Sporidiis lanceolatis, utrinque acutis, uno polo mucronatis, continuis, hyalinis (.03-.035 × .005-.006 mm.).

On Agarics. Sweden.—(E. Fries).

Sometimes the mucronate extremity appears to have a pseudo-septum.

Hypomyces tomentosus, Fries. (Sacc. 4643.)

Ascis cylindraceis. Sporidiis lanceolatis, utrinque mucronulatis, uniseptatis, hyalinis (.042-.05 × .006-.007 mm.).

Hypomyces tegillum, Berk. & Curt. (Sacc. 4645.)

Ascis cylindraceis. Sporidiis arcte lanceolatis, uniseptatis, hyalinis (.014-.016 × .003 mm.).

Hypomyces flavescens (Schwein.).

Peritheciis gregariis, distinctis, globoso-ovatis, papillatis, albidis, villo secedente tectis, subiculo lacteo latissimo pubescente insidentibus. Ascis cylindraceis. Sporidiis arcte ellipticis, hyalinis, immaturis.

On the hymenium of resupinate Polypori. Bethlehem, U.S., ex. herb. Schweinitz.

Hypomyces pannosus (Schwein.).

Late effusus, albidus, pannosus, tenuis, margine fimbriato-byssino. Peritheciis semi-immersis, pallidis. Ostiolis punctiformibus, fuscis. Ascis cylindraceis. Sporidiis immaturis.

On rotten wood. Ex herb. *Schweinitz.*

Quite a different thing from the species described by Fries under the name of *Sphaeria pannosa*.

Nectria alutacea, Berk. & Cooke in Herb. Berk.

Cæspitosa, erumpens, alutacea, vel incarnata. Peritheciis in stromate ellipsoideo vel elongato congestis, subglobosis, papillatis, lævibus, glabris (·25 mm. diam.), translucentibus. Ascis clavatis, octosporis. Sporidiis biseriatis, ellipticis, uniseptatis, hyalinis (·01-·012 × ·003 mm.).

On bark. Neilgherries, India (*E. S. Berkeley*).

Nectria collabens, Berk. & Cooke in Herb. Berk.

Cæspitosa, erumpens, mellina. Peritheciis in stromate tuberculoideis congestis, subglobosis dein collabescientibus, difformibusque, glabris, tenuissimis (·2 mm. diam.). Ascis cylindraceis, octosporis. Sporidiis late ellipticis, utrinque attenuatis, loculis sub-conicis, uniseptatis, hyalinis, magnitudine valde variabilis (·012-·014 varius ·018 × ·006 mm.).

On bark. Bombay (*H. J. Carter*).

Nectria hypocreoides, Berk. & Cooke in Herb. Berk.

Cæspitosa, erumpens, pallida. Peritheciis subglobosis, mox confluentibus (·25 mm. diam.) in stromate tuberculoideis densissime congestis, furfure flavo-pallescente conspersis; ostiolis nudis obscurioribus. Ascis cylindraceis, octosporis. Sporidiis ellipticis, hyalinis, endochromate bipartito, nec vere uniseptatis (·012 × ·004 mm.).

On bark. Bombay (*H. J. Carter*).

Nectria fenestrata, Berk. & Curt. in Herb.

Cæspitosa, cinnabarina, erumpens. Peritheciis globosis, lævibus, glabris, vix papillatis, in stromate tuberculoideo aggregatis. Ascis clavatis, octosporis. Sporidiis biserialibus, ellipticis, 5 septatis, muriformibusque, hyalinis (·03 × ·01 mm.).

On bark. Canada, Ceylon.

Nectria balsamea, Cke. & Peck (*Sacc. Syll.* 4804).

Erumpens, cæspitosa, suborbicularis. Peritheciis parvulis, lævibus, coccineis, papillatis demum collapsis, stromate pallido congestis. Ascis cylindraceo-clavatis, octosporis. Sporidiis fusiformibus, quinquesepbatis, hyalinis (·03 × ·077 mm.).

On bark of *Abies balsamea*. U.S.A.

Nectria decolorans, Fries. *Scler. Suec.*, No. 184.

Ascis cylindrico-clavatis. Sporidiis octonis ellipticis, utrinque rotundatis, uniseptatis, leniter constrictis, hyalinis (·023-·025 × ·0075 mm.).

The above are the results of the examination of three authentic specimens of this species as published in *Scler. Suec.* No. 184.

Nectria Passeriniana (*Nectria viticola*, *Pass in Pirotti. Fung. Par.* 45).

Sub-cæspitosa, erumpens. Peritheciis sub-globosis, carneis, in stromate pulvinato connatis. Ascis cylindraceis, octosporis. Sporidiis ellipticis, uniseptatis, hyalinis (·02 × ·009 mm.).

On vine twigs. (*Ex herb. Passerini*).

Not the species of Berk. and Curt., which is—

Dialonectria viticola, B. & Curt. (vix. Sacc. Syll., No. 4729.)
Sporidiis ellipticis, uniseptatis, hyalinis, (0.01×0.004 mm.).
On *Vitis*. N. America. (*Ex herb. Berkeley*.)

Dialonectria Eucalypti, Cooke & Hark.

Sparsa, superficialis, ochracea. Peritheciis globosis, demum subdepressis (2 mm.), primum pilis papillosis sparsis hyalinis obsitis, mox denudatis. Ascis clavatis, octosporis. Sporidiis lanceolatis, uniseptatis, nec constrictis, hyalinis ($0.016\text{--}0.018 \times 0.004$ mm.).

On bark of *Eucalyptus* branches. California. (Harkness, 2,216, 2359.)

Dialonectria depallens, Cooke & Hark.

Sparsa, gregariave, superficialis, testaceo-rubra, depallens. Peritheciis subglobosis, glabris, nudis, opacis ($\frac{1}{4}\text{--}\frac{1}{3}$ mm.). Ascis clavatis, octosporis. Sporidiis lanceolatis, utrinque subacutis, uniseptatis, nec constrictis, hyalinis ($0.022\text{--}0.024 \times 0.004\text{--}0.0045$ mm.).

On stems of *Lupinus*. California (Harkness, 2,432).

Dialonectria episphaerica, Fries., var. **verruculosa**, Cke.

Peritheciis obtuse, verruculosis, vix collabescentibus. Ascis sporidiisque ut in typis.

On perithecia of *Sphaeria confinis*, Lev. Java.

The specimen of *Sphaeria confinis*, Lev. in Herb. Berk., has this *Nectria* parasitic on the pustules; hence the *Sphaeria* was called *Nectria confinis*, and placed in that genus. Examination has proved, however, that the *Nectria* is parasitic upon Leveille's *Sphaeria*, which is quite distinct, and allied to *Cucurbitaria*, although no perfect sporidia could be found.

Dialonectria laetifulva, Berk. & Cooke in Herb. Berk.

Gregaria, sparsave, laetifulva. Peritheciis superficialibus, globosis, papillatis, glabris, laevibus ($2\text{--}2.5$ mm. diam.). Ascis clavatis, octosporis. Sporidiis biseriatis, breviter lanceolatis, uniseptatis, hyalinis (0.014×0.004 mm.).

On bark. Neilgherries, India (E. S. Berkeley).

Dialonectria xanthostigma, Berk. & Cooke in Herb. Berk.

Sparsa, superficialis, flava. Peritheciis laevibus, glabris, subglobosis (2 mm. diam), leniter papillatis. Ascis clavatis, octosporis. Sporidiis biseriatis, arcte ellipticis, utrinque rotundatis, uniseptatis, hyalinis (0.01×0.003 mm.).

On herbaceous stems. Neilgherries, India (E. S. Berkeley, 1863).

Dialonectria Dorcas (*Peziza dorcas*, B. & Br. Ceylon Fungi 944).

Superficialis, sparsa, globosa, demum collapsa et cupulæformis. Peritheciis extus cervino-tomentosis. Ostiolo fusco. Sporidiis subellipticis, medio constrictis, biseriatis, uniseptatis, hyalinis (0.012×0.0045 mm.).

On some monocotyledonous plant. Ceylon.

Dialonectria vulpina (*Peziza vulpina*, C.) *Cooke.*

Sparsa, aurantio-fusca. Peritheciis globosis, demum depressis et cupulæformibus, lævibus, glabris, vix papillatis (·3-·5 mm.) Ascis clavatis. Sporidiis arcte ellipticis, hyalinis, continuis (·008 × ·0025 mm.).

On chips. New Jersey (*J. B. Ellis*).

Dialonectria diminuta (*B. & C.*), *Nectria diploa*, var. *diminuta*, *B. & C.*
N. Amer. Fungi.

Sporidiis demum triseptatis, hyalinis (·025-·03 × ·0085 mm.). Parasitic on *Sphæria*.

HYSTRICULA, *Cke.*

Cæspitosa, erumpens. Peritheciis confluentibus, vel discretis, tomentosis, mollibus, carneo-membranaceis. Ostiolis teretibus, longissimis. Ascis brevibus. Sporidiis globosis, hyalinis.

Hystricula Montagnei (*Hypoxylon erinaceum*, *Mont.*). *Sacc. Syll. No. 1497.*

Sporidiis globosis, hyalinis (·004 mm.).

NEW CALIFORNIAN FUNGI.

(Continued from Vol. IX., p. 81.)

Dialonectria Eucalypti, *Cooke & Hark.* *Grevillea* XII. p. 82.

On branches of *Eucalyptus* (No. 2216).

Dialonectria depallens, *Cooke & Hark.* *Grevillea* XII. p. 82.

On stems of *Lupinus* (No. 2432).

Stictis monilifera, *Phillips & Harkness.*

Gregaria, minuta, immersa, margine integro, vel sublaciniato, prominulo, disco albido. Sporidiis filiformibus moniliformibusque, (·1 × ·002 mm.) paraphysibus numerosissimis.

On fruit of *Pittosporum*. California (*Harkness*, 2426).

Phacidium albidum, *Phil. & Hark.*

Hypophyllum, gregarium, tectum, convexum, demum in lacinias dehiscens ; disco albido. Ascis cylindraceo-clavatis. Sporidiis linearibus, utrinque acutis, multinucleatis (·06-·075 × ·002 mm.). Paraphysibus numerosissimis, filiformibus.

On the under-side of leaves of *Vaccinium*. California (*Harkness*, 2561).

Hysterium (Hysterographium) ceanothi, *Phil. & Hark.*

Sparsum, sessile vel subimmersum, ovale, dein lanceolatum, lœve, glabrum, nitidum, atrum. Labiis prominulis, arcte conniventibus. Ascis late clavatis, tetrasporis. Sporidiis muriformibus, oblongo-lanceolatis, utrinque obtusis, fuscis (·04-·015 × ·014 mm.) paraphysibus adherentibus.

On stems of *Ceanothus*. California (*Harkness*, No. 2540 bis.).

Sometimes the sporidia are surrounded by a gelatinous envelope.

Hysterium prominens, *Phil. & Hark.*

Sparsum, erumpens dein superficiale, atrum. Peritheciis ellipticis (1 mm. long), longitudinaliter striatis, labiis demum late apertis, hiantibus; disco atro. Ascis clavatis, octosporis. Sporidiis lanceolatis, medio constrictis, utrinque acuminatis, multisep-tatis (7-11), fuscis (·04-·05 × ·01 mm).

On branches of *Salix* (No. 2647).

Lophodermium Dracænæ, *Phil. & Hark.*

Sparsum, ellipticum vel ovatum (·3-·8 mm. long), superficiale, deciduum, glabrum, atrum, labiis adherentibus, demum apertis, hiantibusque. Ascis cylindraceis, octosporis. Sporidiis filiformibus, hyalinis (·07-·085 × ·001-·002 mm.), paraphysibus filiformibus, ad apicem dichotomis.

On *Dracæna*. California (Harkness, 2514).

FUNGI FROM PERAK.

Lenzites repanda, *Fr.* (Wray, 73.)

Polyporus (Mesopus) rugosus, *Nees.* (Wray, 85.)

Polyporus (Pleuroporus) affinis, *Nees.* (Nos. 79, 80.)

Polyporus (Pleuroporus) Guilfoylei, *Müll.* (74.)

Polyporus (Pleuroporus) gramocephalus, *Berk.* (90.)

Polyporus (Anodermei) cinnabarinus, *Fr.* (78.)

Polyporus (Placodermei) australis, *Fr.* (72.)

Polyporus (Inodermei) Auberianus, *Mont.* (81.)

Polyporus (Inodermei) albocervinus, *Berk.* (77.)

Polyporus (Inodermei) elongatus, *Berk.* (59, 84.)

Polyporus (Inodermei) Curreyi, *Berk.* (86.)

Dædalea tenuis, *Berk.* (76.)

Hydnnum sclerodontium, *Berk.* (88.)

Lachnocladium furcellatum, *Ler.* (89.)

Stereum lobatum, *Kunze.* (75.)

Meliola amphitricha, *Fries.*

OIDIUM TUCKERI.—In the "American Monthly Microscopical Journal" for Jan., 1884, Mr. Thos. Taylor claims to have found the perfect fruit of *Oidium Tuckeri* in *Uncinula spiralis*, B. & C. Although both the Rev. M. J. Berkeley and ourselves have urged that there is not the slightest evidence to prove their identity. In the paper above alluded to a communication of M. J. B. is quoted, which states distinctly, "We cannot suppose that it (*Uncinula spiralis*) arises from the historical *Oidium Tuckeri*." The same claim was raised by the same person in 1875, and replied to in the same terms by Mr. C. B. Plowright, in "Monthly Microscopical Journal," Vol. xiii., 1875, p. 209.

SOME EXOTIC FUNGI.

By M. C. COOKE.

Polyporus (Mesopus) pocula (*Sphaeria pocula*. *Schwein. Proc. Acad. Sci. Phil.*).

Erumpens, herbinato-poculiformis, dependens minimus, pruinosis, albidos, substantia subsupirosa pallida (1 lin. lat.) Hymenio discoideo, concavo. Poris minutissimis brevibus. Sporis globosis.—*Cooke in Journ. Linn. Soc. ined.*

On branches. U.S. America.

Cyphella discoidea, *Cooke*.

Gregaria, epiphylla. Cupulis discoideis, 1-2 mm. diam., tenuiter membranaceis, applanatis, glabris; disco carneo, margine albido; basidiis brevibus, sporis globosis, laevibus (.004 mm.).

On Hawkweed. New Zealand (Colenso, No. 30).

Stereum (Apus) lugubris, *Cooke*.

Coriaceum, rigidum, pileo effuso reflexoque, tomentoso, zonato, cinereo-pallescidente, zonis obscurioribus, margine subacuto, pallido, hymenio subpapilloso, glabro, nudo, atro.

On logs. New Zealand (W. Colenso, 23).

A very distinct species by its black obtusely papillate hymenium. Pilei about an inch deep, often densely umbricated and extending laterally several inches.

Sphaeria (Anthostomella) phormicola, *Cke.*

Sparsa, tecta. Peritheciis globosis atris, sub cuticulâ dealbatâ nidulantibus, ostiola impresso. Ascis cylindraceis. Sporidiis ovalibus, continuis, atrofuscis (.099-.01 × .007 mm.).

On flower stalks of *Phormium*, New Zealand (Kirk, 24).

Sphaerella (Sphaerulina) Todeæ, *Cke.*

Sparsa, amphigena. Peritheciis minimis, subglobosis, atris, semi-emargentibus vix papillatis. Ascis clavatis. Sporidiis sublanceolatis, triseptatis, hyalinis (.012 × .0025 mm.)

On *Todea hymenophylloides*. Karori, North Island, New Zealand (Kirk, No. 1).

Asterina Licaniae, *Cooke*.

Epiphylla. Maculis suborbicularibus tenuibus (1 cm.), atro-fuligineis. Peritheciis applanatis, orbicularibus; margine hyphis fuscis intertextis ornato. Ascis amplis saccatis. Sporidiis ellipticis, obtusis, medio constrictis, uniseptatis, atro-fuscis (.04-.045 × .022-.026 mm.).

In foliis *Licaniae*. S. Carlos (Spruce, 633).

Meliola densa, *Cooke*.

Hypo-rarius epiphylla, aterrima, velutina. Maculis orbicularibus (1 cm.), dein confluentibus. Peritheciis globosis, atris, leniter verruculosis (.18 mm. diam.), inter fibras erectas, apice curvulas, confertissimas, quasi absconditis. Ascis late clavatis bisporis. Sporidiis ellipticis 4 septatis, constrictis, fuscis (.045 × .018 mm.).

On leaves of *Eucalyptus*. Herbert River, Queensland, also on leaves of *Ilex* (?) Khasia, India.

FUNGUS FORAY IN IRELAND.

The first Fungus Foray ever held in Ireland took place on 18th September, 1883, under the auspices of the Belfast Naturalists' Field Club.

An excursion was organised to Shane's Castle Demesne as being the oldest and most extensive wood in Ulster. It lies in the County Antrim, fourteen miles north of Belfast.

Nothing could have been more propitious than the weather, nor more abundant than the fungi, in picking specimens of which a large party of members and friends spent a long and pleasant day under the guidance of the Rev H. W. Lett.

A prize, a volume of Cooke's *Fungi*, having been offered for the best collection, eleven competitors displayed the contents of their bags, the numbers being respectively 8, 10, 14, 15, 20, 21, 31, 33, 34, 40, 56, representing in all about 80 species, distributed as follows :—

Agaricini	...	...	...	61
Polyporei...	...	...	...	8
Clavariei ...	...	...	...	2
Trichogastres	...	...	...	2
Auricularini	...	...	...	3
Elvellacei	...	...	...	4

Here, as elsewhere in the North of Ireland, it was noticed that this year *Agaricus campestris* was one of the rarities. The most abundant were *Agaricus nebularis* and *Lactarius torminosus*, which were everywhere in thousands. Only one *Lycoperdon giganteum* and one *Agaricus muscarius* were met with. Several examples of *Helotium aeruginosum* were collected in perfect condition. The best find of the Foray was a colony of magnificent *Sparassis*, wonderfully like cauliflowers, growing on the stump of an oak.

H. W. LETT, M.A.

ÆCIDIUM BELLIDIS, D.C. This fungus has hitherto been regarded as one of the spore forms of *Puccinia compositarum*, Mart. During the past two years I have become convinced that this cannot be its true life history ; for upon the "daisy" no other spore forms occur. A series of experimental cultures made by me during the present winter have demonstrated the fact that this *Æcidium* is heterocëcismal in its habit, and is connected with *Puccinia obscura*, Schröt. on *Luzula*. This *Puccinia* differs from *P. luzulæ*, Lib., in having subglobose rough uredo-spores, whereas the uredo-spores of *P. luzulæ* are elliptical and smooth. It has not previously been recorded as British.

CHARLES B. PLOWRIGHT.

King's Lynn.

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Grevillea,

A QUARTERLY RECORD OF CRYPTOGAMIC BOTANY
AND ITS LITERATURE.

NEW BRITISH LICHENS.

Communicated by THE REV. J. M. CROMBIE, F.L.S.

The following *new species* of Lichens discovered in this country have since my last communication in Grevillea, Vol. x, pp. 22-24, been described by Nylander in the "Flora."

1. Ephebeia Martindalei, *Cromb., Nyl. in Flora*, 1883, p. 104.

Subsimilar to *E. hispidula* (Ach.), but differing in the thallus, being scarcely spinulose, and in the receptacle of the apothecia above being smaragdine (or sub-bluish in thin section). Spores oblongo-ellipsoid, simple, 0·009-0·014 mm. long, 0·004-0·06 mm. thick.

On moist rocks. Mardale, Westmoreland (Martindale). Probably a subspecies of *E. hispidula*.

2. Lecanora (Placodium) miniatula, *Nyl. in Flora*, 1883, p. 98.

Subsimilar to *L. lobulata* (Smmrf.), with the thallus subminiate, planer, and the spores smaller, 0·007-1·010 mm. long, 0·004-0·005 mm. thick.

On quartzose rocks. Morrone, Braemar (Crombie). Probably only a variety or subspecies of *L. tegularis* (Ehrh.).

3. Lecanora circinatula, *Nyl. in Flora*, 1883, p. 100.

Thallus dark-grey or brownish-grey, adpressed, diffract, radios-divided at the circumference, the radii plane; apothecia dark-brown, innate, plane, the thalline margin thin, entire; spores 8 næ, simple, ellipsoid, about 0·007 mm. long, 0·005 mm. thick, paraphyses thickish, articulated; hymenial gelatine at first bluish, and then tawny wine-red with iodine.

On siliceous stones, in maritime districts. Near Beachy Head, Sussex (Crombie). Allied to *L. circinata*, but smaller, and with smaller spores.

4. Lecanora decincta, *Nyl. in Flora*, 1882, p. 452.

Thallus umbrine, smooth, thin, rimulose, greyish at the circumference; apothecia black, opaque, plane, the thalline margin not prominent, internally subicolorous or brownish; spores 8 næ, ellipsoid, simple, 0·010-14 mm. long, 0·006-8 mm. thick, para-

physes discrete, nearly moderate; hymenial gelatine pale-bluish, and then tawny-yellow (especially the thecae), with iodine.

On schistose rocks. Red Scues, Westmoreland (Martindale). Allied to *L. intercincta*, Nyl.

5. *Lecidea cæsio-lepra*, Nyl. in *Flora*, 1881, p. 532.

Thallus cæsious, leprose, soft, thin, effuse, subrimose (K + yellowish); apothecia brown, slightly cæsio-pruinose, with evanescent thalline margin; spores 8 næ, colourless, ellipsoid, 1-septate, 0·009-0·011 mm. long, 0·004-5 mm. thick, paraphyses nearly moderate, inspersed at the apices; hymenial gelatine pale-bluish, the thecae tawny-yellow, with iodine.

On sandstone rocks and quartzose soil. Island of Brechou, near Sark (Larbaletier). Belongs to the section of *L. cyrtella*.

6. *Lecidea aggregatula*, Nyl. in *Flora*, 1883, p. 101.

Thallus whitish or greyish-white, minutely granulated, granulato-aggregated, diffract (K —); apothecia blackish or brownish-black, subrugulose, opaque, adnate, plane, immarginate or submarginate, internally pale; spores 8 næ, oblong, 0·011-15 mm. long, 0·005-6 mm. thick, epithecium brown, paraphyses slender, hypothecium colourless; hymenial gelatine bluish, and then tawny wine-red, with iodine.

On porphyritic rocks. Charnwood Forest, Leicestershire (Larbaletier). It belongs to the section of *Lecidea leucophæa*.

7. *Lecidea tenebrica*, Nyl. in *Flora*, 1882, p. 454.

Thallus dark-greyish, unequal, areolato-rimose, thinnish, sub-determinate; apothecia black, convex, immarginate, internally whitish; spores 8 næ, ellipsoid, simple, 0·010-11 mm. long, 0·005-6 mm. thick, paraphyses not well discrete, epithecium and lower stratum of hypothecium brown; hymenial gelatine bluish, and then tawny-yellow, with iodine.

On schistose rocks. Red Scues, Westmoreland (Martindale). Although having the appearance of *L. tenebrosa*, it belongs rather to the section of *L. rivulosa*.

8. *Lecidea contenebricans*, Nyl. in *Flora*, 1883, p. 533.

Thallus dark-greyish or greyish-brown, nearly moderate, smoothish, rimoso-diffract, internally white (and with I and K + yellow becoming rusty-red); apothecia black, somewhat plane, margined, internally whitish, the lower stratum dark-brown; spores 8 næ, ellipsoid, 0·010-11 mm. long, 0·005-6 mm. thick, epithecium dark-bluish, hypothecium reddish-brown; hymenial gelatine bluish, and then tawny-violet (the thecae especially), with iodine.

On schistose rocks. Red Scues, Westmoreland (Martindale). Though having the appearance of *L. tenebrica*, this is a very distinct species, differing in being larger, with the apothecia margined, and in various other characters.

9. *Lecidea coriacella*, Nyl. in *Flora*, 1882, p. 454.

Thallus dark-greyish, subsMOOTH, coriaceo-insculpt, thinnish but somewhat variable; apothecia blackish, opaque, innate, immarginate, internally pale; spores 8 næ, ellipsoid, simple, 0·010-12

mm. long, 0·006 mm. thick, epithecium brown, paraphyses moderate, hypothecium colourless; hymenial gelatine yellowish (the thecae tawny wine-coloured) with iodine.

On porphyritic rocks. Red Scues, Westmoreland (Martindale). Belongs also to the section of *L. rivulosa*.

10. *Lecidea periplaca*, Nyl. in Flora, 1882, p. 454.

Thallus greyish-black, thin, or very thin, subsMOOTH, thinly areo-lato-rimulose, subbysoid and applanato-placiodoid at the circumference; apothecia black, margined, at length convex, internally pale; spores 8 næ, ellipsoid, 0·009-0·010 mm. long, 0·006 mm. thick, epithecium and peritheciun brown, paraphyses submoderate, thalamium slightly yellowish-brown, hypothecium colourless; hymenial gelatine bluish, and then yellowish (the thecae wine-red), with iodine.

On stones of walls. Stavely, Westmoreland (Martindale). Belongs to the section of *L. tenebrosa*.

11. *Verrucaria interseptula*, Nyl. in Flora, 1881, p. 453.

Thallus olivaceous, opaque, thin; apothecia subconically convexo-prominent, the pyrenium dimidiately black, epithecium not impressed; spores 8 næ, colourless, fusiform, 5-septate, with one or two longitudinal or oblique septules, 0·020-24 mm. long, 0·006-7 mm. thick.

On moist siliceous rocks. Wastdale, Cumberland (Rev. W. Johnson). Belongs to the section of *V. chlorotica*, the thallus containing chrysogonidia.

12. *Verrucaria canella*, Nyl. in Flora, 1883, p. 102.

Subsimilar to *Verrucaria amphibola* or *glaucina*, but at once distinguished by the spores being subfusiform, 0·025-32 mm. long, 0·007-0·011 mm. thick.

On calcareous rocks. Bangor, N. Wales (J. Griffith).

13. *Verrucaria globosa*, Tayl. in MSS., Nyl. in Flora, 1883, p. 534.

Thallus greyish or greyish-greenish, thin, unequal, continuous; apothecia yellowish or yellow flesh-coloured, pertusarioid, sub-globoso-mastoid, often externally covered by the thallus; spores 8 næ, fusiform, 7-septate, 0·050-70 mm. long, 0·010-14 mm. thick; the spores only in the protoplasm tinged tawny-yellow, with iodine.

On trachytic rocks. Blackwater, Kerry (Taylor). Belongs to the section of *V. mastoidea*.

ADDITIONS TO THE BRITISH CLADONIEI.

The following varieties and forms have to be added to those recorded in my enumeration (*vid. "Grevillea,"* 1883, pp. 111-115):—

1. *Cladonia degenerans*, var. *pleiolepidea*, Nyl.

Rare amongst the N. Grampians. Morrone, Braemar.

2. *Cladonia furcata racemosa*, f. *palamæa*, Ach.

Rare in S. England. Shiere, Surrey.

3. **Cladonia coccifera**, var. **incrassata**, Flk. (**C1. macilenta**, f. **deminuta**, Cromb.).

Rare in the W. Highlands and among the Central Grampians.

4. **Cladonia macilenta**, var. **scabrosa**, Mudd; f. **incrassata**, Cromb.
"Podetia larger, turgid, densely and coarsely granulato-squamulose."

Probably not unfrequent amongst the Grampians.

5. **Cladonia bacillaris**, var. **subcoronata**, Nyl.—Exs., Mudd Clad., n. 72 in pt.

Not common in N. England, the S. Grampians, and N. W. Ireland.

6. **Cladina sylvatica**, f. **tenuis**, Lamy.—Exs., Mudd Clad., n. 58.

Probably not uncommon.

- var. **grandis**, Flk.—Exs., Mudd Clad., n. 60.

Local and rare in N. England, S. Scotland, and amongst the Grampians.

J. M. C.

CALIFORNIAN FUNGI.

BY M. C. COOKE AND W. H. HARKNESS.

(Continued from p. 84.)

Coniothyrium rosarum, Cke. & Hark.

Gregaria, tecta, demum corticem stellato-fissurans. Sporis profusis subglobosis, ovatisve, continuis, pallide fuscis ($\cdot004 \times \cdot003$ mm.).

On stems of *Rosa*. California (No. 2176).

Coniothyrium punctum, Cke. & Hark.

Sparsum, subliberum, maculas nigras insidens. Peritheciis minimis, depressis, atris ($\cdot15$ mm. diam.). Sporis subglobosis pallide fuscis ($\cdot005$ mm.).

On decorticated *Acacia*. California (2067).

Coniothyrium decipiens, Cke. & Hark.

Erumpens, prominulum, subgregarium. Peritheciis globosis, atris, opacis, subrugosis, demum superficialibus, sporis ovalibus, subglobosive continuis, pallide fuscis ($\cdot004 \times \cdot003$ mm.).

On branches of *Acacia*. California (No. 2267).

Phoma rhamnicola, Cke. & Hark.

Gregaria, minuta, punctiformis. Peritheciis tectis, subglobosis, atris, ostiolis erumpentibus. Sporis oblongis, continuis, hyalinis, ($\cdot0075 \times \cdot003$ mm.).

On twigs of *Rhamnus Californica*. California (No. 2188).

Phoma Pittospori, Cke. & Hark.

Gregaria sparsave, parvula. Peritheciis atris subglobosis tectis, demum sursum erumpentibus, sporis ellipticis, continuis, hyalinis, ($\cdot008 \times \cdot0025$ mm.).

On twigs of *Pittosporum*. California (No. 2294).

Accompanying *Diplodia Pittospori*, C. & H.

Phoma stigma, Cke. & Hark.

Caulicola. Perithecia minuta, sparsa vel subgregaria, punctiformis, semi-immersa, poro pertusa, sporis ellipticis, continuis, hyalinis ($.006 \times .003$ mm.).

On stems of *Portulaca*. California (No. 1958).

Phoma heteromeles, Cke. & Hark.

Epiphylla. Peritheciis subsparsis, semi-immersis, sursum nudibus, conico-convexis, atris, nitidis. Sporis elongato-ellipticis, continuis, hyalinis, plerumque binucleatis ($.01 \cdot 012 \times .003$ mm.).

On dead leaves of *Heteromeles*. California (No. 2312, 2089).

Phoma discosiaeformis, Cke & Hark.

Epiphylla, subgregaria. Peritheciis parvulis, superne nudibus convexo-applanatis, nitidis, atrofuscis. Sporis minutis, ovalibus continuis, hyalinis ($.005 \times .0025$ mm.).

On dead leaves of *Quercus aquifolia*. California (No. 2135).

Phoma Pritchardiae, Cke. & Hark.

Subgregaria. Peritheciis semi-immersis primo tectis, atris, nitidis, poro pertusis. Sporis cylindrico-ellipticis, utrinque obtusis, continuis, binucleatis, hyalinis ($.014 \times .003$ mm.).

On leaves of *Pritchardia*. California (No. 2167).

Sphaeropsis macrospermum, Cke. & Hark.

Superficiale, sparsum. Peritheciis subglobosis, atris, punctiformibus, laevibus, vix papillatis. Sporis magnis, ellipticis, utrinque rotundatis, hyalinis ($.032 \cdot 04 \times .012$ mm.) granulis repletis, episporio crasso.

On fallen *Eucalyptus* bark. California (No. 2000 bis).

Resembling in habit some such Sphaeria as *S. millegrana*.

Sphaeropsis maculatum, Cke. & Hark.

Maculis atris, effusis, difformibus. Peritheciis gregariis, magnis globosis rugulosis erumpentibus. Sporis ellipticis, profusis, hyalinis ($.01 \times .005$ mm.)

On palms. California (No. 2546).

A species of a very distinct character, the perithecia being seated on large blackened patches.

Diplodia resurgens, Cke. & Hark.

Gregaria. Erumpens, demum subsuperficialis. Peritheciis globosis, atris, parvulis, nec papillatis, pertusis. Sporis arce ellipticis, utrinque rotundatis, uniseptatis, nec in medio constrictis, laete brunneis ($.012 \cdot 014 \times .004$ mm.)

On twigs of *Rhus trilobata*. California (No. 2134).

Clearly distinct from *D. microspora*, Sacc.

Diplodia Sarothamni, Cke. & Hark.

Gregaria vel sparsa, tecta, subtiliter elevata, ostiolo atro pertusa; peritheciis depressis atris. Sporis elongato-ellipticis, obtusis, uniseptatis, vix constrictis, fuscis ($.03 \times .01$ mm.).

On twigs of *Sarothamnus*. California (No. 2094).

Diplodia Amygdali, Cke. & Hark.

Gregaria, tecta, corticem vix elevata. Peritheciis globoso-depressis, atris, papillatis. Sporis ellipticis, obtusis, uniseptatis, nec constrictis, fuscis ($0.02\text{--}0.02 \times 0.08$ mm.).

On Apricot twigs. California (No. 2076).

Distinct from *D. cerasorum*. Fckl.

Diplodia Pittospori, Cke. & Hark.

Sparsa vel subgregaria, tecta. Peritheciis subglobosis, atris, ostiolo punctiformi erumpente. Sporis ellipticis, diu hyalinis, continuis, demum uniseptatis, fuscis, nec constrictis (0.02×0.12 mm.).

On twigs of *Pittosporum*. California (No. 2171).

Diplodia millegrana, Cke. & Hark.

Superficialis, gregaria. Peritheciis subglobosis, atris, laevibus, minimis. Sporis ellipticis, uniseptatis, utrinque rotundatis, nec medio constrictis, late fuscis ($0.022\text{--}0.03 \times 0.08$ mm.).

On decorticated *Acacia*. California (No. 2102).

In habit resembling *Sphaeria millegrana*. Schweinitz.

Diplodia lata, Cke. & Hark.

Gregaria, tecta. Peritheciis globoso-depressis, atris, in corticem nidulantibus, vix elevatis. Sporis ellipticis, uniseptatis, utrinque rotundatis, medio constrictis, atro fuscis ($0.025 \times 0.16\text{--}0.18$ mm.).

On branches of *Acacia*. California (No. 2283).

Characterised chiefly from its allies by the broad spores.

Chromosporium lateritium, Cke. & Hark.

Effusum, pulverulentum, late lateritium, hyphis obsoletis. Sporis subglobosis ovatisve, hyalinis, roseo-tinctis (0.01×0.09 mm.).

On decorticated *Acer*. (No. 2488.)

Ceuthospora minima, Cke. & Hark.

Amphigena, parvula, convexa, atra, nitida ($\frac{1}{6}\text{--}\frac{1}{5}$ mm. diam.) sparsa vel in maculas irregularis aggregata, demum sursum fissurata. Sporis bacilliformibus, obtusis, hyalinis (0.02×0.01 mm.), sporophoribus brevibus simplicibus.

On dead leaves of *Vaccinium*. California (No. 2555).

Pestalozzia inquinans, Cke. & Hark.

Epiphylla, sparsa, immersa, demum fissurato-erumpens, marginem circa sporis exudentibus inquinans. Sporis clavatis, trilocularibus, fuscis, utrinque hyalino-apiculatis, superne setis tribus ornatis, infra breviter pedicellatis (0.02×0.05 mm. sine setis).

On dead leaves of *Eucalyptus*. California (No. 2094).

Pestalozzia polychæta, Cke. & Hark.

Sparsa, tecta, demum elevata et stellato-fissurata, pustulis mediocribus. Sporis clavatis, trilocularibus, fuscis, utrinque hyalino-apiculatis, superne 4-5 ciliatis (0.025×0.08 mm. sine setis).

On twigs of *Sarothamnus*. California (No. 2095).

Glæosporium capsularum, Cke. & Hark.

Gregarium, punctiforme, ore fissurato-lacerato ; sporis extrusis hinc illic in caespitibus pallidis acervatis ; sporis cylindraceis utrinque obtusis, gracilibus, rectis, continuis hyalinis ($0.018\text{--}0.02 \times 0.025$ mm.).

On dead capsules of *Eucalyptus*. California (No. 2290).

***Libertella Lonicerae*, Cke. & Hark.**

Sparsa, tecta, leviter bullata, demum pertusa. Conidiis fusiformibus arcuatis, continuis, hyalinis, in cirrhos pallidos emergentibus ($\cdot02 \times \cdot025$ mm. long).

On twigs of *Lonicera*. California (No. 2474).

***Dictyosporium circinatum*, Cke. & Hark.**

Effusum, atro-fuliginosum, pulverulentum. Sporis subglobosis cordatisve, cellulosis (7-10) fuscis, cellulis globoso-compressis, circinatis, ut in *Helicomatis* simulantibus, absque hyphibus (sporis $\cdot035$ mm. cellulis $\cdot01$ mm. diam.).

On decorticated *Platanus*. (No. 2434.)

Spores similar to those of *Helicoma Berkeleyi*, but entirely without threads of any kind. A somewhat aberrant *Dictyosporium*.

***Dictyosporium opacum*, Cooke & Hark.**

Maculiforme, atrum. Sporis linguiformibus, appanatis, atro-fuligineis, subopacis ($\cdot05\text{--}\cdot06 \times \cdot03\text{--}\cdot035$ mm.). Cellulis seriatis parallelibusque (circa $\cdot005$ mm. diam.) compositis, numquam dissidentibus.

On culms of *Typha latifolia*. California. (No. 2507.)

***Bactrodesmium opacum*, Cke. & Hark.**

Effusum, atrofuscum. Hyphis repentibus, sparsis, ramosis, septatis, flexuosis. Sporis assurgentibus, clavato-cylindraceis; rigidis, sursum rotundatis, deorsum apiculato-attenuatis, atro-fuscis, opacis, multiseptatis ($\cdot1 \times \cdot01$ mm.) cellulis diametro 2-3 plo. brevioribus.

On cedar plank. California (No. 2363).

***Bactrodesmium clavulatum*, Cke. & Hark.**

Effusum, maculiforme, velutinum, atrum. Sporis clavatis, rectis, sursum rotundatis, deorsum in stipitem brevem attenuatis, 4-5 septatis, atrofuscis ($\cdot045\text{--}\cdot05 \times \cdot015$ mm.).

On bark of *Eucalyptus*. California (No. 1999, 2322).

***Mystrosporium turbinatum*, Cke. & Hark.**

Effusum, velutinum, atrum. Hyphis brevibus, tenuibus, subsimplicibus, septatis, plerumque sparsis. Sporis turbinatis, mox liberis, 3-5 septatis, superne rotundatis, obscurioribus, opacis, deorsum attenuatis, subhyalinis ($\cdot025\text{--}\cdot028 \times \cdot01$ mm.).

On decorticated *Sequoia* (No. 2495.)

Spores broader than in *M. aterrimum* from which it differs also in not being densely fasciculate, and in the spores being soon deciduous. Quite distinct from *Helminthosporium Arecæ* B. & Br.

***Helminthosporium atro-olivaceum*, Cooke & Hark.**

Atro-olivaceum, molle, lanosum, effusum. Hyphis flexuosis, tenuissimis ($\cdot0025\text{--}\cdot003$ mm.) intertextis, plerumque simplicibus, breviter septatis; sporis clavatis ellipticisve, multe crassioribus, obscurioribusque, quinquesepbatis, fuscis ($\cdot02\text{--}\cdot025 \times \cdot0075$ mm.).

On bark of *Acacia*. (No. 2328.)

Threads very delicate and flexuous, not half the diameter of the spores, which latter are very numerous.

***Epochnium glaucum*, Cke. & Hark.**

Pulvinatum, vel breviter effusum, molle, glaucum vel cæsioglaucum. Hyphis tenuibus, repentibus, ramulosis, hyalinis. Sporis sub-quadratis subglobosis, vel subpyriformibus ($\cdot 01\text{--}015 \times \cdot 01$ mm.) cellulis 4-8 (plerumque 4) compositis, atro-fuscis.

On wood of oak (No. 2434), and of *Umbellularia* (No. 2445). California.

The component cells of the spores are about $\cdot 004$ mm. diam.

***Cladosporium brunneum*, Cke. & Hark.**

Tenuiter effusum, atrum. Hyphis fasciculatis, erectis, multi-septatis, leniter flexuosis, brunneis, ad basim obscurioribus. Sporis ellipticis, continuis, demum uniseptatis, nec constrictis, concoloribus ($\cdot 01\text{--}014 \times \cdot 004$ mm.).

On dead leaves of *Hedera*. California (No. 1954).

Differs from its allies in the threads and spores being alike of a clear brown colour.

***Stachybotrys scabra*, Cke. & Hark.**

Effusa, atra. Hyphis repentibus, ramosis, septatis, hyalinis, ramulis assurgentibus, ad apicem capitato-divisis. Sporis subglobosis, inæqualibus, verrucosis, atro-fuscis ($\cdot 006\text{--}01$ mm.).

On *Phormium tenax*. California (No. 2458).

***Strumella Acaciæ*, Cke. & Hark.**

Gregaria, discoidea, convexa, superficialis, atra. Hyphis simplibus, rectis, compactis, in massam olivaceis. Conidiis ovalibus, profusis, acrogenis, pallide olivaceis, primo utrinque truncatis ($\cdot 004\text{--}005 \times \cdot 0025$ mm.).

On twigs and branches of *Acacia*. California (Nos. 2175, 2355).

***Blennoria umbellulariæ*, Cke. & Hark.**

Stroma discoidea, atra, convexa, subgregaria, erumpens. Hyphis bis vel tri-dichotomis, erectis, hyalinis. Sporis cylindraceis, terminalibus, utrinque obtusis, continuis, hyalinis ($\cdot 035\text{--}04 \times \cdot 004$ mm.).

On branches of *Umbellularia*. California (No. 1985).

***Fusarium gynerium*, Cke. & Hark.**

Aurantiacum, tenuiter effusum, maculæforme. Sporis fusiformibus, utrinque abrupte attenuatis curvatis, quinqueseptatis, nec constrictis ($\cdot 05 \times \cdot 006$ mm.).

On sheaths of *Gynierium argenteum*. California (No. 1978).

***Fusarium cataleptum*, Cke. & Hark.**

Aurantio-rubrum, convexo-pulvinatum ($\frac{1}{2}$ -1.c.m.). Sporis elongato-fusiformibus, arcuatis, utrinque longe attenuatis, multi-nucleatis ($\cdot 06\text{--}08 \times \cdot 044$ mm.).

On branches of *Acacia*. California (No. 1981).

***Fusarium Acaciæ*, Cke. & Hark.**

Roseum, minutum, punctiforme, gregarium, convexum. Sporis fusiformibus, utrinque acutis, curvulis, quinqueseptatis, hyalinis, ($\cdot 045\text{--}05 \times \cdot 005$ mm.).

On twigs of *Acacia*. California (No. 2353).

Fusarium obtusisporum, Cke. & Hark.

Pallidum, erumpens, convexum, margine tenui, saepe confluens. Sporis cylindraceis, curvulis, utrinque obtusis, indistincte trisep-tatis, hyalinis ($\cdot 03\text{--}035 \times \cdot 004\text{--}005$ mm.).

On twigs of *Acacia*. California (No. 2273).

Trichosporium fuscescens, Cke. & Hark.

Late effusum, subcompactum, fuscescens ; hyphis ramosis, re-pentibus, densissime intertextis, septatis, fuscis. Sporis acrogenis, inspersisve, ovalibus vel subellipsoideis, laevibus, fuscis ($\cdot 008\text{--}01 \times \cdot 077$ mm.).

On decorticated pine (No. 2491).

Zygodesmus marginatus, Cke. & Hark.

Effusus, pallidus, margine lato albo sterili circumdatus. Hyphis repentibus, septatis, intertextis, hyalinis. Sporis globosis, nume-rosis, pallidis, spinulosis ($\cdot 006\text{--}008$ mm.).

On pine wood. California (No. 2360).

Threads thicker than the diameter of the spores, or of equal thickness.

Tetrachia quadrigemina, Berk & Curt.

This is the *Sporidesmium tessararthrum* B. & C. and the *Spegazzinia ornata* Sacc., found originally in Cuba, and Venezuela.

FLORA OF BRITISH FUNGI (HYMENOMYCETES).—The Rev. John Stevenson has now announced this work, in two vols., post 8vo., with illustrations by Mr. Worthington Smith. The price to sub-scribers is fixed at 10s. 6d. each volume, which will be increased on publication. The issue will depend on a sufficient number of subscribers being received by an early date, in which case the first volume will be published without delay. Address, either to Rev. John Stevenson, Glamis, N.B., or to Messrs. W. Blackwood and Sons, Edinburgh.

WOOLHOPE FUNGUS FORAY, 1884.—The Club day is fixed for Thursday, October 16th. Visitors will assemble for the week on Monday, October 13th. The Essex Field Club Foray—to extend over two days—will be held on Friday and Saturday, Oct. 3rd and 4th.

A REAL YANKEE PUFF-BALL.—In the “American Naturalist” for May, 1884, Professor C. E. Bessey announces that a specimen of *Lycoperdon giganteum* has been found in Herkimer County, N.Y., which was of an oval outline, and measured *five feet four inches* in its longest diameter and *four feet six inches* in its smallest diameter, whilst its height was but nine and a half inches. Professor Call says of it, that it was “much larger than the largest wash-tub we had at home.”

NEW BRITISH FUNGI.

By M. C. COOKE.

(Continued from p. 70.)

Agaricus (Hebeloma) ischnostylus, Cooke.

Pileus slightly viscid, smooth, even, convex, then expanded, and broadly umbonate, white or a little pallid at the disc, inodorous (or with a faint odour of *Spiraea*), margin thin, stem slender, equal, or a little thickened at the base, solid, smooth, naked, gills rounded behind and adnate, slightly serrate at the margin, whitish then argillaceous.

On the ground, amongst grass. Shrewsbury.

Pileus 1-2 inches broad, stem 2 inches long, $\frac{1}{8}$ - $\frac{1}{6}$ inch thick. Spores 0.012×0.0075 mm. Belongs to the section *Denudati* and allied to *Ag. nudipes*, but evidently not any form of that species. Will be figured in the "Illustrations."

Agaricus (Naucoria) cidaris, Fr. Hym. Eur. 253.

Pileus rather fleshy, conical then campanulate, even, clay coloured cinnamon, when dry tan-coloured, margin undulated, striate, stem hollow, fusiform short, smooth dark brown, gills affixed, then seceding, ventricose crowded, honey-coloured.

In pine woods, and on the ground around trunks. Near Hereford (Dr. Bull).

Pileus an inch high and broad, or more; stem $1\frac{1}{2}$ in. long. Inodorous.

Hydnnum (Resupinati) stipatum, Fr. Hym. Eur. 617.

Whitish. Subiculum broadly effused, flocculoso-furfuraceous, crustaceous, adnate, spines crowded, granuliform, rather obtuse and denticulate.

On rotten wood. Carlisle (Dr. Carlyle).

Differing from the other species with white spines in the furfuraceous stratum. The spines are obtuse and crowded, very few being toothed. The whiteness is retained in drying.

Hydnnum Weinmanni, Fr. Hym. Eur. 613.

The typical form has been found by Dr. Carlyle, near Carlisle, and also, what appears to be, a variety, which differs in being of a deep bay-brown when fresh, with obtuse spines of the same colour. This species was only found previously in this country by the late Rev. A. Bloxam.

Morchellia Smithiana, Cooke Mycographia t. 83.

This species has again been found and forwarded to us in a fresh state from Malton, Yorks. There is no doubt in our minds of its being a good species. The pileus of the specimen in question was four inches in diameter, and four inches in height. The sporidia are proportionately narrower than in allied species, being about 0.02×0.008 , and although sometimes as long as 0.022 or 0.023 mm. the

width is not increased. The paraphyses are very thick. The pits of the pileus half an inch in diameter, and equally deep. The stem densely but shortly tomentose. Specimen preserved in the Herbarium of the Royal Gardens, Kew.

Tilletia sphærococca, F. de Waldh. Bull. Mosc. 1867 p. 255.

Mycelium black. Spores globose or obtuse-ovoid ($\cdot 026\text{--}03$ mm.) dark brown reticulations of the episporae more prominent than in *Tilletia caries*.—*Mem. sur les Ustilag.* p. 254.

In the ovaries of *Agrostis pumila*. Glen Cluny (F. C. S. Roper).

Entyloma canescens, Schröter, Beitr. z. Biol. Pflanzen II., 372.

Leafspots (1-3 mm. diam.) at first whitish, then turning brown or black. Spores nearly spherical ($\cdot 008\text{--}012$ mm. diam.), smooth almost colourless, and rather thin-walled. *Scottish Naturalist Ap. 1884*, p. 125 and 181. *Protomyces Fergussoni*. *B. & Br. Herb. Berk. No. 5247*.

On leaves of *Myosotis*. New Pitsligo and Aberdeen.

Entyloma Calendulæ, De Bary, Bot. Zeit. 1874.

Spores rounded or angular $\cdot 008\text{--}012$ mm. (mostly $\cdot 01\text{--}012$ mm.) with a sporoderm of two membranes, yellowish. *Fisch. de Waldh. Ustilag.* p. 246. *Scottish Naturalist Jan., 1884*, p. 124. *Protomyces Hieracii Berk. in Herb. No. 5248*.

On leaves of *Hieracium*. Noran woods.

Doassansia alismatis, Cornu, Ann. Sci. Nat. (1883) xv., 285.

Effused, circinate, on both surfaces of the leaves. Sori $\cdot 2\text{--}2.8$ mm. diam. $\times \cdot 16\text{--}2$ mm. deep. Spores numerous, nearly spherical ($\cdot 008$ mm. diam.) pale brown, and thin-walled. Cells of outer wall brown, and about $\cdot 02$ mm. $\times \cdot 008\text{--}01$ mm. *Scottish Naturalist Ap. 1884*, p. 180. *Protomyces macularis Fckl. Symb. Myc. p. 75*. *Thum. Myc. Univ. No. 1417*. *Protomyces Sagittariæ Fckl. Vize Micr. Fungi. Protomyces Alismatis, Berk. in Herb. Æcidium incarceratum, Berk. in Rabh. Fung. Eur. No. 1492. Uredo Sagittariæ. West. and Wall. Herb. Belge. Physoderma maculare (Wallr.) in Thum. Myc. Univ. No. 1417*.

On leaves of *Alisma plantago*, and *Sagittaria*.

Oidium pactolinum, Cooke.

Tenuiter effusum, aureo-fulgum. Hyphis brevissimis, tenuis, vix conspicuis. Conidiis subglobosis, concatenatis, utrinque polo primo truncatis, demum (liberis) rotundatis, plasmate aureo, sub-granuloso repletis ($\cdot 01$ mm. diam.).

Forming a thin stratum, as if sprinkled with gold powder. Threads so short as scarce to be detected. Conidia in chains of from 6 to 10 nearly globose cells, at first longer than broad, and truncate at the ends, but at maturity, and when detached, becoming globose, with a thin hyaline membrane, and granular golden yellow contents.

On living leaves of *Jasminum sambac* in stove. Isleworth (G. Nicholson).

Acmosporium tricephalum, *Phillips in Gard. Chron.* Mar. 8, 1884,
jig. 61.

Small oval white tufts $\frac{1}{8}$ in. long formed of a layer of loosely interwoven colourless hyphae, from which arise simple erect septate stems, once or twice branched in the upper part, the extremities of each branch again divided into three short branchlets, which are slightly enlarged upwards, and each terminated by a globose head on which are seated several globose spores. Total height 25 mm.; width of stem .01 mm.; diameter of globose head .014 mm.; spores .005 mm.

On fallen leaves of *Cryptomeria japonica*.

BRITISH FRESH-WATER ALGÆ.

Chroolepus umbrinum (*Kutz.*) has recently been obtained by Mr. Varenne in Essex. He says, "It seems frequent on the bark of oak and elm trees, in woods, and in the more open country about Kelvedon."

Microthamnion vexator (*Cooke*) has been found by Mr. F. Bates in the neighbourhood of Leicester, also

Spirogyra velata (*Cleve*) in excellent fruit.

Sympylosiphon Hoffmanni (*Ag.*) was detected by us a few days since in one of the stoves of the Royal Botanic Society, in Regent's Park.

M. C. C.

NOTES ON HYPOCREACEÆ.

(Continued from p. 83.)

Claviceps Wilsoni, *Cooke in Grevillea* XII., p. 77. *Barya aurantiaca*, *Plow. & Wils. in Gard. Chron.* Feb. 9, 1884.

This has nothing in common with the genus *Barya*, to which it has been referred, that being only a cæspitose *Acrospermum*.

Cordyceps isarioides, *Curt. in Cat. Plants. N. Carolina*, p. 138.

Cordyceps gryllotalpæ, *Curt. in Cat. Plants. N. Carolina*, p. 138.

Of both these nothing but the names appear to have been published.

Hypocrea dacrymycella, *Cooke & Plow.*

Stromatibus gregariis (3-4 mm.), superficialibus pulvinatis, humectis tremelloideis, subrufis, demum siccis collabescientibus, ex ostiolis obscurioribus punctiformibus punctatis. Ascis cylindraceis. Sporidiorum articulis æqualibus, 16, subglobosis leniter granulatis, olivaceis (.006-.008×.006 mm.).

On Scotch fir. Brandon, England (*C. B. Ploverright*).

Hypocrea flavo-virens, *Berk. in Herb. No. 8305.*

Pulvinata, orbicularis, demum centro depresso (1-3 mm.) flavo-virescens, ostiolis punctiformibus, atro-viridis. Ascis cylindraceis. Sporidiorum articulis subglobosis truncatis, olivaceis.

On bark. Nilgherries, India.

Nectria infusaria, Cooke & Hark.

Cæspitosa, erumpens, pallide rubra. Peritheciis paucis, ovalibus, ceraceo-mollis subconfluentibus, lævibus, glabris, 5-10 in stromatice gerentibus. Ascis cylindraceis octosporis. Sporidiis uniseriatis ellipticis, obtusis, uniseptatis, nec constrictis, hyalinis demum pallidis ($\cdot01 \times \cdot0045$ mm.).

Conidiis plerumque consociatis, vel in pustulis præcedentibus, fusarioideis, stromate pulvinato, rubro-pallescente, sporis curvulis, utrinque acutis, triseptatis, gracilibus, hyalinis ($\cdot03\text{--}04 \times \cdot0025$ mm.) = *Fusarium Acaciae*, C. & H.

On *Acacia* twigs. (No. 2362, 2268.) California.

Byssonectria chrysocoma, Cke. & Hark.

Lignicola. Stroma fibroso-byssoidea, aurea, effusa. Peritheciis minutis gregariis ($\cdot1\text{--}1.5$ mm.) obovatis, tenuibus, flavidо-fuscis, in stromate semi-immersis. Ascis clavatis, octosporis. Sporidiis biseriatis arcte ellipticis, uniseptatis hyalinis ($\cdot01 \times \cdot002\text{--}0025$ mm.).

On wood of *Eucalyptus*. (No. 2321.) California.

Byssonectria rosella, Cke. & Hark.

Tenuis, effusa, rosella. Hyphis repentibus intertextis. Peritheciis minutis inspersis obscurioribus (incompletis). Conidiis fusarioideis lunatis, utrinque acutis quinquesepatatis, plerumque nodulosis hyalinis immixtis ($\cdot04 \times \cdot005\text{--}006$ mm.).

On dead grass. California. (No. 2241.)

Unfortunately, in an immature condition, the perithecia alone being formed. The conidia appear to present distinctive characters.

Dialonectria filicina, Cke. & Hark.

Sparsa vel gregaria, aurantia, intra squamulas filicis nidulans. Peritheciis obovatis, lævibus, glabris subnitidis, vix papillatis. Ascis cylindraceis octosporis. Sporidiis elliptico-cylindricis, utrinque obtusis hyalinis ($\cdot008 \times \cdot0025$ mm.).

On stipes of tree-fern. California. (2133.)

Acrospermum Robergeanum, Desm. Ann. des. Sci. Nat. ser. 3, t. xvi. (1851) 300, Desm. Crypt., No. 51.

Sparsum minutum clavatum cylindricum brunneo-pallidum, apice et basi albido siccum nigrescens complanatum. Ascis cylindraceis, longissimis, tenuibus, octoporis ($\cdot25$ mm.) sporidiis parallele stipatis filiformibus, ascis longitudine subæqualibus, hyalinis.

In foliis semiputridis *Corni sanguineæ*.

Acrospermum fultum, Harkness in Trans. California Acad. Sci. 1884, p. 47.**Acrospermum (Barya) parasiticum**, Fckl. Sacc. Syll. No. 5003. Acrospermum stromaticum, Cooke in Grev. VIII., 38. Epichlöe virescens Quelet in Grev. VIII., '38. Acrospermum virescens, Sacc. Syll., No. 5870.

Whichever description may prove to be most accurate, we have at least satisfied ourselves, by examination of authentic specimens of Fuckel's and Quelet's plants, that both are in all respects absolutely identical.

SYNOPSIS PYRENOMYCETUM.

SUB-ORD. Pyrenomycetes.

Fam. 1. HYPOCREACEÆ, De Not.

Simplices vel compositæ. Perithecia subcarnosa vel ceraceo-membranacea, lâete colorata numquam carbonacea. Ostiole dehiscentia. Stroma, ubi adest molliusculum, carnosò-ceraceum, rarius byssinum. Sporidia plerumque hyalina rarius fusca.—*Sacc. Syll.* ii. 447.

Sub-Fam. I. HYPOCREOIDEÆ.

GEN. 1. **CLAVICEPS**, Tul.—Stroma verticale, e scleratio. Sporidia filiformia hyalina.—Sacc. Syll. ii. 564.

- | | | | |
|--------------------------------------|-----------|--|----------|
| 1. <i>purpurea</i> , <i>Fr.</i> | ... *5005 | 4. <i>pusilla</i> , <i>Ces.</i> | ... 5008 |
| 2. <i>microcephala</i> , <i>Tul.</i> | ... 5006 | 5. <i>setulosa</i> , <i>Quel.</i> | ... 5009 |
| 3. <i>nigricans</i> , <i>Tul.</i> | ... 5007 | 6. <i>Wilsoni</i> , <i>Cke., Grev.</i> xii. 77 | |

GEN. 2. **CORDYCEPS**, Fries.—Stroma verticale, entomogenum, subinde mycogenum, clavatum. Sporidia filiformia, in articulos mox secedentia, hyalina.

A. *Entomogenæ.*

* Stroma simplicia, clavula rotundata vel elliptica.

- | | | | |
|---|------|--------------------------------------|------|
| 7. entomorrhiza (<i>Dicks.</i>) | 5012 | 13. dipterigena, <i>B. & Br.</i> | 5053 |
| <i>v. gracilis, Grev.</i> ... | 5001 | 14. myrmecophila, <i>Ces.</i> | 5010 |
| <i>v. menesteridis, Berk.</i> | | 15. Humberti, <i>Rob.</i> ... | 5045 |
| 8. insignis, <i>Cke., Grev.</i> xii. 38 | | 16. coccigena, <i>Tul.</i> ... | 5047 |
| 9. Wallaysii, <i>West</i> ... | 5014 | 17. Helopis, <i>Quel.</i> ... | 5025 |
| 10. armeniaca, <i>B. & C.</i> ... | 5016 | 18. cinerea, <i>Tul.</i> ... | 5026 |
| 11. flavella, <i>B. & C.</i> ... | 5022 | 19. unilateralis, <i>Tul.</i> ... | 5027 |
| 12. Ditmari, <i>Quel.</i> ... | 5024 | 20. australis, <i>Speg.</i> ... | 5028 |

** *Stroma furcata*, vel ramosa.

21. *bicephala*, *B.* ... 5029 23. *sobolifera*, *B.* ... 5021
 22. *palustris*, *B.* & *Br.* ... 5018 24. *racemosa*, *B.* ... 5049

* * Stroma simplicia, clayula elongata.

- | | | | | | | |
|-----|--|------|------|-----|-------------------------------------|---------------|
| 25. | Gunnii, <i>Berk.</i> | ... | 5030 | 35. | Ravenelii, <i>B. & C.</i> | 5035 |
| 26. | circulionem, <i>Tul.</i> | ... | 5013 | 36. | superficialis, <i>Peck</i> | 5036 |
| 27. | sphecophila, <i>Kl.</i> | ... | 5015 | 37. | {acicularis, <i>Rav.</i> ... | 5037 |
| 28. | stylophora, <i>B. & Br.</i> | 5017 | | | {=Carolinensis, <i>B. & Br.</i> | |
| 29. | gentilis, <i>Ces.</i> | ... | 5020 | 38. | typhulæformis, <i>B. & Cke.</i> | |
| 30. | alutacea, <i>Quel.</i> | ... | 5023 | | | Grev. xii. 78 |
| 31. | pistillariæformis, <i>B. & Br.</i> | 5019 | | 39. | falcata, <i>Berk.</i> ... | 5040 |
| 32. | militaris, <i>Linn.</i> | ... | 5031 | 40. | sinensis, <i>B.</i> ... | 5051 |
| 33. | memorabilis, <i>Ces.</i> | ... | 5032 | 41. | Barnesii, <i>Thw.</i> ... | 5052 |
| 34. | {Robertsii, <i>Hook.</i> ... | 5034 | | 42. | fuliginosa, <i>Ces.</i> ... | 5042 |
| | {=C. <i>Hugelii</i> , <i>Corda</i> . | | | | | |

* These numbers, to the right, are those of the species in Saccardo's "Sylloge."

** Stroma ramosa vel fasciculata.

43. caloceroides, *B. & C.* 5050 = *cæspitosa*, *Tul.* ... 5043
 44. Sinclairi, *Berk.* ... 5054 45. Taylori, *Berk.* ... 5041

* * * Perithecia in stromate conspersa vix capitata.

46. sphingum, *Tul.* ... 5033 47. memorabilis, *Ces.* ... 5032
 B. *Mycogenæ.*

48. ophioglossoides, *Ehr.* 5038 49. capitata, *Holms.* ... 5039
 C. *Species incertæ.*

50. melolonthæ, *Tul.* ... 5044 53. albida, *B. & C. in Herb.*
 51. Miquelii, *Tul.* ... 5046 54. herculea (*Schw.*) ... 5055
 52. Montagnei, *B. & C.* ... 5048 55. adpropinquans, *Ces.* 5056

GEN. 3. **CORALLOMYCES**, *B. & Curt.*—Stroma ramosum filiforme, perithecia nuda ramis stromatis insita.—*Sacc. Syll.* ii. 519.
 56. elegans, *B. & C.* ... 4832

GEN. 4. **EPICHLÖE**, *Fries.*—Stroma sessile effusum, culmos plerumque circumambiens. Sporidia filiformia, *Sacc. Syll.* ii. 598.

57. typhina (*P.*) ... 5057 61. strangulans (*M.*) ... 5058
 58. cinerea, *Berk.* ... 5059 62. atramentosa, *B. & C.* 5066
 59. pulvinulus, *Berk.* ... 5068 63. Bambusæ, *B. & Br.* 5064
 60. semiamplexa, *B. & C.* 5067

GEN. 5. **GLAZIELLA**, *Berk.*—Stroma subglobosum, carnosum laeticolor, sporidia plerumque dubium.—*Sacc. Syll.* ii. 581.

64. abnormis (*B. & C.*) ... 5071 67. ceramichroa (*B. & Br.*) 5074
 65. aurantiaca, *Berk.* ... 5072 68. vesiculosa, *Berk.* ... 5075
 66. splendens, *Berk.* ... 5073

GEN. 6. **HYPOCREA**, *Fries.*—Perithecia stromate pulvinato vel effuso subsuperficiale immersa.—*Sacc. Syll.* ii. 520.

A. **PODOCROA**, *Sacc.* Stroma verticaliter elongata.

69. alutacea, *P.* ... 4882 72. brevipes, *M.* ... 4886
 70. larvata, *M.* ... 4884 73. grossa, *B.* ... 4874
 71. Petersii, *B. & C.* ... 4885

B. **EU-HYPOCREA**, *Sacc.* Stroma pulvinata, disciforma vel effusa. Sporidia didyma, articulis secedentibus.

a. *Stroma pulvinata vel discoidea.*

† Sporidia hyalina.

74. cerebriformis, *B.* ... 4897 81. patella, *C. & P.* ... 4849
 75. peltata, *Jungh.* ... 4916 82. laetior, *B. & C.* ... 4867
 76. rufa (*P.*) ... 4834 83. pulvinata, *Fckl.* ... 4835
 77. vinosa, *Cke.* ... 4846 84. lycogalæ, *K. & C.* ... 4847
 78. jecorina, *B. & Br.* ... 4864 85. tremelloides, *Sch.* ... 4839
 79. discella, *B. & Br.* ... 4869 86. Richardsoni, *B. & M.* 4873
 80. pezizoides, *B. & Br.* ... 4865 87. umbrina, *Cke., Grev.* xii. 78

88. subrufa, *B. & Cke.*, xii. 79 95. palmicola, *B. & C.* 4862
 89. minima, *Sacc.* ... 4837 96. lenta, *Tode.* ... 4836
 90. olivacea, *C. & E.* ... 4838 97. Schweinitzii, *Fr.* ... 4840
 91. insignis, *B. & C.* ... 4907 98. atrata, *Karst.* ... 4841
 92. stereorum, *Schw.* ... 4915 99. rigens, *Fr.* ... 4844
 93. saccharina, *B. & C.* ... 4906 100. contorta, *Schw.* ... 4859
 94. subcitrina, *K. & C.* ... 4848 101. solenostoma, *B. & Rav.* 4887

†† Sporidia colorata.

102. gelatinosa, *Tode.* ... 4850 109. chrysostigma, *K. & C.* 4855
 103. multiformis, *B. & R.* 4861 110. sulfurella, *K. & C.* 4854
 104. dacrymycella, *C. & Pl.*,
 Grev. xii. 100 111. spinulosa, *Fckl.* ... 4851
 105. chlorospora, *B. & C.* 4852 112. flavovirens, *Berk.*,
 Grev. xii. 100
 106. chromosperma, *C. & Pk.* 4857 113. Moliniæ, *Pass.* ... 4856
 107. aureoviridis, *Pl. & C.* 4853 114. rugulosa, *B. & Cke.*,
 Grev. xii. 79
 108. catoptron, *B. & Br.* ... 4863

††† Color non indicatus.

115. hæmatoplaea, *Mont.* ... 4858 116. fibula, *d'Not* ... 4868
 b. *Stroma effusa.*

† Sporidia hyalina.

117. citrina (*P.*) ... 4875 126. deplanata, *B. & Br.* 4871
 118. Karsteniana, *Niessl.* } 4876 127. Cesatiana, *Cke., Grev.*
 = *fungicola*, *Karst.* } 4876 xii. 78
 119. ochroleuca, *B. & Rav.* 4901 128. hypomycelia, *Sacc.* 4880
 120. armeniaca, *B. & C.* ... 4904 129. lactea, *Fr.* ... 4878
 121. albofulva, *B. & Br.* ... 4866 130. farinosa, *B. & Br.* 4879
 122. delicatula, *Tul.* ... 4877 131. stipata, *Lib.* ... 4881
 123. polyporoidea, *B. & C.* 4905 132. colliculosa, *Fries.*,
 124. sulfurea, *Schwz.* ... 4909 *Grev.* xii. 79
 125. cervina, *B. & C.* ... 4896

d. *Stroma obsoleta.*

133. inclusa, *B. & Br.* ... 4895

C. PHÆOSPORA. Stroma pulvinata vel discoidea. Sporidia elliptica fusca, episporio asperulo.

134. rhytidospora, *Ces.* ... 4894

D. SELINIA, *Karst.* (*Sacc.* ii, 457). Stroma verruciforme, villosulum. Sporidia continua hyalina.

- 134*. pulchra (*Wint.*) ... 4586

a. *Stroma effusa.*

135. Nilgherrensis, *B. & Cke.*,
 Grev. xii. 79 136. Fendleri, *B. & Curt.*,
 Grev. xii. 80

b. *Stroma discoidea.*

137. consimilis, *Ellis Grev.* xii. 79. 138. viridans, *B. & C.* 4892

E. CLINTONIELLA, *Sacc.* Stromate variis. Sporidiis fusoideis raro ellipsoideis uni-septatis.

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|---|--|
| 139. <i>corticoides</i> , <i>B. & Br.</i> ... 4890 | 145. <i>apiculata</i> , <i>C. & Pk.</i> 4889 |
| 140. <i>carnea</i> , <i>K. & Cke.</i> ... 4842 | 146. <i>fusigera</i> <i>B. & Br.</i> 4891 |
| 141. <i>impressa</i> , <i>M.</i> ... 4893 | 147. <i>Carteri</i> , <i>B. & Cke.</i> , |
| 142. <i>fusca</i> , <i>Mont.</i> ... 4860 | <i>Grev.</i> xii. 79 |
| 143. <i>undulata</i> , <i>B. & Cke.</i> ,
<i>Grev.</i> xii. 79 | 148. <i>tuberculariformis</i> ,
<i>Rehm.</i> ... 4845 |
| 144. <i>citrinella</i> , <i>Ellis</i> ... 4843 | |

a. HYPOCREOPSIS, *Karst.* Stroma tuberoso-carnosum, lobatum. Sporidia ellipsoidea uniseptata, hyalina.

149. *riccioidea* (*Bolt.*) ... 6173

F. BROOMEELLA (*Sacc. Syll.* ii. 557.) Sporidia subfusoidea 2-pluriseptata.

- | | |
|---|---|
| 150 <i>vitalbæ</i> <i>B. & Br.</i> ... 4987 | 152 <i>chlorina</i> , <i>Cke.</i> ... 4989 |
| 151 <i>Ravenelii</i> , <i>Berk.</i> ... 4988 | 153 <i>nephidium</i> , <i>B. & Br.</i> 3357 |

G. HYPOCRELLA (*Sacc. Syll.* ii. 579). Sporidia filiformia.

§ Perithecia concreta.

- | | |
|--|--|
| 154. <i>phylogenæ</i> , <i>M.</i> ... 5060 | 159. <i>hypoxylon</i> , <i>Peck</i> 5069 |
| 155. <i>discoidea</i> , <i>B. & Br.</i> ... 5061 | 160. <i>maculæformis</i> , <i>B. & C.</i> 4883 |
| 156. <i>scutata</i> , <i>Cke.</i> ... 5062 | |
| 157. <i>Palmæ</i> , <i>B. & Br.</i> ... 5063 | § § Perithecia libera. |
| 158. <i>cyperacearum</i> , <i>B. & C.</i> 5065 | 161 <i>tuberiformis</i> , <i>B. & R.</i> 4902 |

Species imperfectæ.

- | | |
|--|--|
| 162 <i>parasitans</i> , <i>B. & C.</i> ... 4870 | 169. <i>sublobata</i> , <i>Schw.</i> 4911 |
| 163. <i>semiorbis</i> , <i>B.</i> ... 4898 | 170. <i>cupularis</i> , <i>Fr.</i> ... 4912 |
| 164. <i>atrovirens</i> , <i>M.</i> ... 4899 | 171. <i>enteromorpha</i> , <i>Lev.</i> 4913 |
| 165. <i>Berggreni</i> , <i>Cke.</i> ... 4900 | 172. <i>molliuscula</i> , <i>Schw.</i> 4914 |
| 166. <i>subviridis</i> , <i>B. & C.</i> ... 4903 | 173. <i>variabilis</i> , <i>Curr.</i> ... 4917 |
| 167. <i>artocreas</i> , <i>B. & Br.</i> ... 4908 | 174. <i>armata</i> , <i>Fr.</i> ... 4888 |
| 168. <i>sterilior</i> , <i>Schw.</i> ... 4910 | |

GEN. 7. POLYSTIGMA. *Pers. Sacc.* ii. 458.—Stroma effusum, fulvum vel rubrum, phyllogenum.

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|--|--|
| 175. <i>rubrum</i> , <i>Pers.</i> ... 4587 | 177. <i>Bumeliæ</i> , <i>S.</i> ... 4589 |
| 176. <i>fulvum</i> , <i>D. C.</i> ... 4588 | |

GEN. 8. VALSONECTRIA. *Speg. Sacc.* ii. 519.—Perithecia valsoideo-circinantia, tecta.

* Sporidia uniseptata.

178. *pulchella*, *Speg.* ... 4833

** THYRONECTRIA (*Sacc.* ii. 561). Sporidia muriformia.

- | | |
|--|---|
| 179. <i>patavina</i> , <i>Sacc.</i> ... 4997 | 180. <i>pyrochlora</i> , <i>Awd.</i> 4998 |
|--|---|

Sub.-Fam. II. NECTRIÆ.

GEN. 9. **SPHÆROSTILBE.** (*Tul.*) *Sacc. Syll.* ii. 511.—Perithecia *Nectriæ* sed in basi vel in consortio fungilli condiphori verticaliter elongata.

** Sporidia uniseptata.*

181. flammæa, <i>Tul.</i>	...	4807	191. cinnabarina, <i>Tul.</i>	4817
182. sanguinea, <i>Fckl.</i>	...	4808	192. variabilis, <i>B. & Br.</i>	4818
183. cæspitosa, <i>Fckl.</i>	...	4809	193. incerta, <i>Ces.</i>	...
184. aurantiaca, <i>Tul.</i>	...	4810	194. hypocreoides <i>K. &</i> <i>Cke.</i>	4820
185. coccophila, <i>Tul.</i>	...	4811	195. repens, <i>B. & Br.</i> ...	4821
186. hyalina, <i>Fckl.</i>	...	4812	196. nitida, <i>B. & C.</i> ...	4822
187. gracilipes, <i>Tul.</i>	...	4813	197. lateritia, <i>B. & C.</i> ...	4823
188. Wrightii, <i>B. & C.</i>	...	4814	198. rosea, <i>K. & Cke.</i> ...	4824
189. fusca, <i>Fckl.</i>	...	4815	199. dubia, <i>B.</i> ...	4825
190. flavo-viridis, <i>Fckl.</i>	...	4816		

*** MEGALONECTRIA.* *Sacc. Syll.* ii. 560.*Sporidiis muriformibus.*

200. { pseudo-trichia, <i>Schw.</i>	4995	201. nigrescens, <i>K. &</i> <i>hypocrateriformis, B. & Br.</i>	<i>Cke.</i>	...
				4996

GEN. 10. **NECTRIA.** *Fries.*—Perithecia libera, cæspitosa, subinde stromati conidifero insidentia. Sporidia oblongata.

*A. EU-NECTRIELLA. Sporidia continua.*** Asci octospori.*

202. miltina, <i>Mont.</i>	...	4547	204. fusarioides, <i>Berk.</i>	4561
203. microspora, <i>C. & E.</i>	...	4555		

*** CHILONECTRIA. Asci polyspori.*

205. cucurbitula, <i>Curr.</i>	...	4574	207. Rosellinii, <i>Car.</i>	...
206. sulphurella, <i>Not.</i>	...	4575	208. myriospora, <i>Cr.</i>	...

** * APONECTRIA, *Sacc. ii.* 516.*

209. inaurata, <i>B. & Br.</i>	...	4826	210. coryli, <i>Fckl.</i>	...
				4674

*B. Sporidia uniseptata.*** METANECTRIA, *Sacc. ii.* 517. Asci polyspori.*

211. citrum (<i>Wallr.</i>)	...	4828.

*** Asci octospori.*

212. cinnabarina, <i>Tode.</i>	...	4662	221. Russellii, <i>B. & C.</i>	4668
213. ribis, <i>Tode.</i>	...	4663	222. coccinea, <i>P.</i>	...
214. decolorans, <i>Fr.</i>	...	4797	223. Desmazierii, <i>Not.</i>	4672
215. punicea, <i>Kze.</i>	...	4664	224. sub-coccinea, <i>S. & E.</i>	4673
216. rubicarpa, <i>C.</i>	...	4665	225. ditissima, <i>Tul.</i>	...
217. Celastri, <i>S.</i>	...	4669	226. eximia, <i>K. & C.</i>	4667
218. illudens, <i>Berk.</i>	...	4736	227. vulgaris, <i>Speg.</i>	...
219. verrucosa, <i>S.</i>	...	4790	228. Bogosarum, <i>Pass.</i>	4677
220. sinopica, <i>Fr.</i>	...	4666	229. Zelandica, <i>Cke.</i>	4678

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| 230. cucurbitula, <i>Tode</i> ... | 4680 | 246. armeniaca, <i>Tul.</i> ... | 4675 |
| 231. heterosperma, <i>K. & C.</i> | 4682 | 247. chlorella, <i>Fr.</i> ... | 4694 |
| 232. hematochroma, <i>Speg.</i> | 4683 | 248. ochroleuca, <i>Schw.</i> | 4789 |
| 233. laeticolor, <i>B. & C.</i> ... | 4684 | 249. chrysites, <i>Wallr.</i> ... | 4695 |
| 234. bactridioides, <i>B. & B.</i> | 4679 | 250. collabens, <i>B. & Cke.</i> ,
<i>Grev.</i> xii. 81 | |
| 235. infusaria, <i>Cke.</i> & <i>H.</i>
<i>Grev.</i> xii. 101 | | 251. appланата, <i>Fr.</i> ... | 4697 |
| 236. Magnusiana, <i>Rehm.</i> ... | 4685 | 252. discophora, <i>M.</i> ... | 4698 |
| 237. nigropunctata, <i>Speg.</i> ... | 4686 | 253. rhizogena, <i>Cke.</i> ... | 4699 |
| 238. nigrescens, <i>Cke.</i> ... | 4687 | 254. alutacea, <i>B & Cke.</i> l.c. 81 | |
| 239. bicolor, <i>B. & C.</i> ... | 4690 | 255. stilbosporæ, <i>Tul.</i> ... | 4702 |
| 240. aurantiicola, <i>B. & Br.</i> ... | 4691 | 256. stenospora, <i>B. & Br.</i> | 4703 |
| 241. gyrosa, <i>B. & Br.</i> ... | 4681 | 257. selenosporii, <i>Tul.</i> ... | 4704 |
| 242. aureofulva, <i>C. & E.</i> ... | 4692 | 258. aglæothele, <i>B. & C.</i> | 4732 |
| 243. offuscata, <i>B.</i> ... | 4688 | 259. carneo-rosea, <i>Rehm.</i> | 4709 |
| 244. ochracea, <i>Grev.</i> ... | 4689 | 260. Passeriniana, <i>Cke.</i> ,
<i>Grev.</i> xii. 81 | |
| 245. aquifolii, <i>Fr.</i> ... | 4693 | | |

a. CRYPHONECTRIA. Stroma grumosa.

261. variicolor, *Fckl.* ... 4784 262. abscondita, *Sacc.* 4785

b. LEPIDONECTRIA, Sacc. ii. 503. Perithecia furfuracea vel squamulosa.

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|--|------|--|
| 263. Ralfsii, <i>B.</i> & <i>Br.</i> ... | 4767 | 270 mammioidea, <i>Plow.</i> 4774 |
| 264. apocyni, <i>Pk.</i> ... | 4769 | 271. hypocreoides, <i>B.</i> & <i>Cke.</i> ,
<i>Grev.</i> xii. 81 |
| 265. subquaternata, <i>B.</i> & <i>C.</i> 4701 | | 272. dematiosa, <i>S.</i> ... 4782 |
| 266. furfuracea, <i>K.</i> & <i>C.</i> ... | 4770 | 273. pulcherrima, <i>B.</i> &
<i>Br.</i> ... 4962 |
| 267. diploa, <i>B.</i> & <i>C.</i> ... | 4771 | 274. Otagensis, <i>Curr.</i> 6174 |
| 268. dealbata, <i>B.</i> & <i>R.</i> ... | 4772 | |
| 269. pityrodes, <i>Mont.</i> ... | 4773 | |

C. CALONECTRIA, Sacc. ii. 540. *Sporidia pluriseptata*.

* Sporidia 2-5 septatae.

275. *cucurbitula*, *Fr.* ... 4934 278. *Oudemansii*, *West.* 4948
 276. *decora*, *Wallr.* ... 4936 279. *citrino-aurantia*, *Lac.* 4950
 277. *rigidiuscula*, *B. & Br.* 4938 280. *balsamea*, *C. & Pk.* 4804

** Sporidia 6-10 septata.

- 281 *{aurigera, B. & Br. ... 4931* 282 *polythalama, B. ... 4933*
=flavitecta, B. & C. 4935

* * * Sporidia muriformia.

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|--|------|--|------|
| 283. Lamyi, <i>Desm.</i> ... | 4990 | 287. Tasmanica, <i>B.</i> ... | 4795 |
| 284. Berolinensis, <i>Sacc.</i> ... | 4991 | 288. <i>fenestrata</i> , <i>B.</i> & <i>C.</i> | |
| 285. <i>megalospora</i> , <i>Sp.</i> ... | 4992 | <i>Grev.</i> xii. 81 | |
| 286. <i>austro-americana</i> , <i>S.</i> | 4993 | | |

D. *Species dubiæ.*

289. aurora, Fries ... 4788 290. dubia, K. & C. ... 4800

GEN. 11. **HYPOMYCES**, Fries. *Sacc.* ii. 466.—*Subiculum byssinovellutinum, fungicolum.*

* PECKIELLA. Sporidia continua.

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|---|--|
| 291. <i>viridis</i> , <i>A. & S.</i> ... 4633 | 297. <i>hyalinus</i> , <i>S.</i> ... 4639 |
| 292. <i>Tulasneanus</i> , <i>Plow.</i> ... 4643 | 298. <i>transformans</i> , <i>Pk.</i> 4640 |
| 293. <i>chrysostomus</i> , <i>B. & Br.</i> 4635 | 299. <i>Banningiae</i> , <i>Pk.</i> ... 4641 |
| 294. <i>Van-Bruntianus</i> , <i>Ger.</i> 4636 | 300. <i>ater</i> , <i>Fr. Grev.</i> xii. 80 |
| 295. <i>violaceus</i> , <i>Fr.</i> ... 4637 | 301. <i>apiosporus</i> , <i>Cke., Grev.</i> |
| 296. <i>polyporinus</i> , <i>Pk.</i> ... 4638 | xii. 80 |

** EU-HYPOMYCES. Sporidia uniseptata.

A. *Mycogenae.*

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| 302. <i>asterophorus</i> , <i>Tul.</i> ... 4611 |
| 303. <i>fusisporus</i> , <i>Tul.</i> ... 4612 |
| 304. <i>melanostigma</i> , <i>Tul.</i> 4613 |
| 305. <i>chrysospermus</i> , <i>Tul.</i> ... 4614 |
| 306. <i>lateritius</i> , <i>Fr.</i> ... 4615 |
| 307. <i>aureonitens</i> , <i>Tul.</i> ... 4616 |
| 308. <i>spadiceus</i> , <i>Fr., Grev.</i>
xii. 80 |
| 309. <i>rosellus</i> , <i>A. & S.</i> ... 4617 |
| 310. <i>roseus</i> , <i>Pers.</i> ... 4618 |
| 311. <i>lactifluorum</i> , <i>Schw.</i> ... 4619 |
| 312. <i>Broomeanus</i> , <i>Tul.</i> ... 4620 |
| 313. <i>ochraceus</i> , <i>P.</i> ... 4621 |
| 314. <i>tomentosus</i> , <i>Fries.</i> ... 4643 |
| 315. <i>aurantius</i> , <i>Pers.</i> ... 4622 |
| 316. <i>fulgens</i> , <i>Fr.</i> ... 4623 |

317. *Berkeleyanus*, *Plow.*

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| ... & <i>C.</i> ... 4625 |
| 318. <i>candidans</i> , <i>Plow.</i> ... 4626 |
| 319. <i>paeonius</i> , <i>B. & Br.</i> 4627 |
| 320. <i>torminosus</i> , <i>Mont.</i> 4628 |
| 321. <i>floccosus</i> , <i>Fr.</i> ... 4629 |
| 322. <i>insignis</i> , <i>B. & C.</i> ... 4630 |
| 323. <i>chromaticus</i> , <i>B.</i> ... 4631 |
| 324. <i>Cesatii</i> , <i>Mont.</i> ... 4632 |
| 325. <i>subiculosus</i> (<i>B. & C.</i>) 4763 |
| B. <i>Terrigenae, lignicolae,</i> |
| 326. <i>terrestris</i> , <i>Plow. &</i>
<i>Boud.</i> ... 4624 |
| 327. <i>tegillum</i> , <i>B. & C.</i> 4645 |
| 328. <i>pannosus</i> , <i>Schwz., Grev.</i>
xii. 80 |
| 329. <i>flavescens</i> , <i>Schwz., Grev.</i>
xii. 80. |

*** BERKELELLA. Sporidia pluriseptata.

330. *stilbiger*, *B. & Br.* ... 4642

Species ascis ignotis.

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|--|---|
| 331. <i>deformans</i> , <i>Lagg.</i> ... 4644 | 334. <i>agaricola</i> , <i>Chaill.</i> 4648 |
| 332. <i>trichoderma</i> , <i>Hoffm.</i> ... 4646 | 335. <i>tubericola</i> , <i>Schwz.</i> 4659 |
| 333. <i>fulvus</i> , <i>Fr.</i> ... 4647 | 336. <i>boleticola</i> , <i>Schwz.</i> 4650 |

Species incompletae.

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|---|--|
| 337. <i>Linkii</i> , <i>Tul.</i> ... 4651 | 342. <i>chlorinus</i> , <i>Tul.</i> ... 4656 |
| 338. <i>pezizæ</i> , <i>Tul.</i> ... 4652 | 343. <i>Baryanus</i> , <i>Tul.</i> ... 4657 |
| 339. <i>cervinus</i> , <i>Tul.</i> ... 4653 | 344. <i>tuberosus</i> , <i>Tul.</i> ... 4658 |
| 340. <i>decipiens</i> , <i>Tul.</i> ... 4654 | 345. <i>miliarius</i> , <i>Tul.</i> ... 4659 |
| 341. <i>bombacinus</i> , <i>Karst.</i> ... 4655 | 346. <i>albus</i> , <i>Cr.</i> ... 4660 |

GEN. 12. **ELEUTHEROMYCES**, Fckl.—*Perithecia cylindraceo-subulata, subdiaphana.*—*Sacc.* ii. 455.

Sporidia continua, setigera.

347. *subulatus* (*Tode*) ... 4578

GEN. 13. **BYSSONECTRIA**, Karst. Sacc. ii. 456.—Stromate byssino-connexæ, perithecia subsuperficialia, conferta.

A. *Sporidia hyalina*.

* *Sporidia continua*.

348. *obducens*, Karst. ... 4583 349. *fimetii*, Cke. ... 4584

** **HYPHONECTRIA**—*Sporidia uniseptata*.

350. *byssiseda*, B. & Br. 4758 355. *umbrinella*, B. & Br. 2762
 351. *australis*, B. & B. ... 4759 356. *fimicola*, Fkl. ... 4761
 352. *flavo-lanata*, B. & Br. 4779 357. *bryophila*, Rob. ... 4764
 353. *pezicula*, Speg. ... 4760 358. *epigœa*, Cke. ... 4765
 354. *chrysocoma*, Cke. & Hk.,
 Grev. xii. 101

* * * *Sporidia 2-5 septata*.

359. *ambigua*, Speg. ... 4943

B. *Sporidia colorata*.

* **SPHÆRODERMA**. *Sporidia continua*.

360. *theleboloides*, Fkl. ... 4590

** **LETENDRÆA**. *Sporidia uniseptata*.

361. *turbinata*, Fkl. ... 4921 362. *eurotioides*, Sacc. 4920

C. *Species dubiae*.

363. *auricoma*, Wallr. ... 4787 365. *Eugeniae*, Curr. ... 4802
 364. *Dufourii*, Fries. ... 4798 366. *rosella*, Cke. & Hark.,
 Grev. xii. 101

GEN. 14. **OOMYCES**, B. & Br.—Perithecia pauca sacculo inclusa, sporidia filiformia, hyalina.

367. *carneo-albus* (*Lib.*) ... 5004

GEN. 15. **PUIGGARIELLA**. Speg.—Subiculum flabellatum. Perithecia scutellato-dimidiata.—Sacc. ii. 478.

* *Sporidia hyalina, didyma*.

368. *apiahyna*, Speg. ... 4661

GEN. 16. **DIALONECTRIA**, Sacc. (p.p.).—Perithecia libera, superficialia, gregaria vel sparsa, carnosa, glabra, lète colorata.

A. **NECTRIELLA**. *Sporidia continua*.

- | | |
|---|--|
| a. <i>lignicolæ vel corticolæ</i> . | 375. <i>thelopsioides</i> , Cr. 4563 |
| 369. <i>aurea</i> , S. & S. ... 4551 | 376. <i>bambusæ</i> , B. & Br. 4558 |
| 370. <i>saccharina</i> , B. & C.... 4700 | 377. <i>jucundula</i> , S. & S. 4549 |
| 371. <i>chrysites</i> , West. ... 4556 | 378. <i>resinæ</i> , Fr. 4564 |
| 372. <i>vulpina</i> , Cke. Ellis N.E.
<i>Fungi</i> , No. 774 | b. <i>fructicola</i> . |
| | 379. <i>versoniana</i> , S. & P. 4552 |
| 373. <i>coruscans</i> , Fr. ... 4559 | c. <i>herbicola</i> vel <i>foliicola</i> . |
| 374. <i>jucunda</i> , M. ... 4548 | 380. <i>digitalicola</i> , Cr. ... 4562 |

381. citrina, *Cr.* ... 4565 d. *In cryptogamis parasiticæ.*
 382. umbelliferarum, *Cr.* ... 4566 385. mycetophila, *Pk.* ... 4554
 383. chlorina, *Cr.* ... 4567 386. perpusilla, *M.* ... 4560
 384. { furfurella, *B. & Br.* ... 4568 e. *Charticolæ.*
 { =Keithii, *B. & Br.* ... 4569 387. papyrogena, *S. & P.* 4553
- B. EU-DIALONECTRIA. Sporidia uniseptata hyalina.
- a. *Lignicolæ vel corticolæ.*
388. sanguinea, *Fr.* ... 4721 420. graminicola, *B. & B.* 4717
 389. peziza, *Tode.* ... 4757 421. paludosa, *Fckl.* ... 4718
 390. laurina, *Sacc.* ... 4722 422. thujana, *Rehm.* ... 4719
 391. rimincola, *Cke.* ... 4723 423. pandani, *Tul.* ... 4720
 392. truncata, *Ellis* ... 4724 424. xanthostigma, *B. & Cke.*,
 393. citrina, *Fr.* ... 4725 *Grev.* xii. 82
 394. flava, *Bon.* ... 4726 425. umbrina, *B.* ... 4796
 395. umbellulariæ, *Plow. & Hk.*
 Trans. Cal. Ac. Sci. 1884,
 p. 26 426. depallens, *Cke. & Hark.*,
 396. dispersa, *C. & E.* ... 4727 *Grev.* xii. 82
 397. verruculosa, *Niessl.* ... 4728 427. depauperata, *Cke.* 4696
 398. viticola, *B. & C.* ... 4729 428. galii, *Plow. & Hark.*,
 399. Veullotiana, *S. & R.* 4730 *Trans. Cal. Ac. Sci.*,
 400. urceolus, *Sp.* ... 4731 1884, p. 26
 401. eucalypti, *Cke. & Hark.*,
 Grev. xii. 82 c. *Fructicolæ.*
 402. quisquilaris, *Cke.* ... 4733 429. { *peponum, B. & C.* 4713
 403. hæmatococca, *B. & Br.* 4735 { *aurelia, B. & C.*
 404. leocarpoides, *K. & C.* 4737 { *perpusilla, B. & C.*
 405. martialis, *K. & C.* ... 4738 d. *In cryptogamis parasiticæ.*
 406. congesta, *Sacc.* ... 4739 430. episphaeria, *Tode.* 4740
 407. lætifulva, *B. & Cke.* *Grev.*
 xii. 82 431. Purtoni, *Grev.* ... 4741
 * *Perithecia squamulosa.* 432. tephrothele, *B.* ... 4742
 408. squamuligera, *Sacc.* ... 4766 433. Fuckelii, *Sacc.* ... 4744
 409. squamulosa, *Ellis* ... 4768 434. lichenicola, *Ces.* ... 4745
 b. *Herbicolæ vel foliicolæ.* 435. erythrinella, *Nyl.* ... 4746
 410. minutissima, *Rehni.* ... 4706 436. Robergei, *M. & D.* 4747
 411. dacrymycella, *Nyl.* ... 4707 437. lecanodes, *Ces.* ... 4748
 412. heraclei, *Cr.* ... 4708 438. tabacina, *Ces.* ... 4749
 413. fuscidula, *Rehm.* ... 4709 439. aurea, *Grev.* ... 4750
 414. Bloxami, *B.* ... 4952 440. affinis, *Grev.* ... 4751
 415. brassicæ, *Ell.* ... 4710 441. lycopodii, *Lev.* ... 4752
 416. Daldiniana, *Not.* ... 4712 442. muscivora, *B. & Br.* 4961
 417. alpina, *Wint.* ... 4714 443. filicina, *Cke. & Hk.*, *Grev.*
 418. foliocola, *B. & C.* ... 4715 xii., 101
 419. arenula, *B. & B.* ... 4716 e. *Charticolæ, terricolæ, &c.*
 444. charticola, *Fckl.* ... 4753
 445. ossicola, *Cr.* ... 4754
 446. indigena, *Arn.* ... 4755
 447. fibricola, *Pl.* ... 4756
 448. monilifera, *B. & C.* 4550
- C. COSMOSPORA. Sporidia uniseptata, fusca, asperula.
449. cosmariospora, *Not.* ... 4786 451. myriadea, *Ces.* ... 4557
 450. fuliginea, *B. & Br.* ... 4734

D. CALONECTRIA. Sporidia oblongata, guttulata.

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|--|---|------|
| a. <i>Lignicolæ v. corticolæ</i> | 458. <i>Curtisii, B.</i> | 4963 |
| 452. <i>Brongniartii, Cr.</i> | c. <i>Foliicolæ</i> . | |
| 453. <i>Levieuxii, Fr.</i> | 459. <i>obvoluta, Kalch.</i> | 4954 |
| 454. <i>ulicis, Cr.</i> | 460. <i>leucorrhodina, Sp.</i> | 4955 |
| 455. <i>aurea, Cr.</i> | 461. <i>minuscula, S. & Sp.</i> | 4960 |
| b. <i>Herbicolaæ</i> . | 462. <i>luteola, Desm.</i> | 4965 |
| 456. <i>xantholeuca, Kze.</i> | a. <i>Funicolæ</i> . | |
| 457. <i>sceptri, Karst.</i> | 463. <i>luteo-fusca, Cr.</i> | 4970 |

* Sporidia 2-5 septata.

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| a. <i>Lignicolæ v. corticolæ</i> | 472. <i>erubescens, Desm.</i> | 4944 |
| 464. <i>chlorinella, Cke.</i> | c. <i>In cryptogamis parasiticæ</i> . | |
| 465. <i>agnina, Desm.</i> | 473. <i>Massariæ, Pass.</i> | 4947 |
| 466. <i>Leightoni, B. & B.</i> | 474. <i>affinis, Sacc. sub.</i> | |
| 467. <i>Fuckelii, Ntke.</i> | <i>Paranectria</i> | 4972 |
| 468. <i>varians, Sacc.</i> | 475. <i>diminuta, B. & C.</i> { | 4771 |
| 469. <i>platasca, Berk.</i> | 4743 | |
| 470. <i>ochraceo-pallida, B.</i> | 476. <i>cerea, B. & C.</i> | 4967 |
| b. <i>Foliicolæ</i> . | 477. <i>helminthicola, B. &</i> | |
| 471. <i>pyrochroa, Desm.</i> | <i>Br.</i> | 4968 |

** Sporidia 6-10 septata.

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| a. <i>Lignicolæ v. corticolæ</i> | b. <i>Herbicolaæ</i> . | |
| 478. <i>macrospora, S. & Sp.</i> 4923 | 483. <i>Plowrightiana, Sacc.</i> 4925 | |
| 479. <i>Tarvisina, Sp.</i> | 484. <i>opalina, Cr.</i> | 4928 |
| 480. <i>pseudopeziza, Desm.</i> | c. <i>Foliicolæ</i> . | |
| 481. <i>viburnicola, Cr.</i> | 485. <i>Daldiniana, Not.</i> | 4922 |
| 482. <i>Richoni, Sacc.</i> | d. <i>In cryptogamis parasiticæ</i> . | |
| | 486. <i>duplicella, Nyl.</i> | 4926 |

E. PLEONECTRIA, sporidia muriformia.

487. *lichenicola, Cr.* 4994 488. *lutescens, Arn.* 6175

F. OPHIONECTRIA, sporidia filiformia.

489. *mellina (M.)* 4999 491. *agaricicola, B.* 5001
 490. *trichospora, B. & Br.* 5000 492. *paludosa, Cr.* 5002

G. Species dubiae.

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| 493. <i>epimyces, Fr.</i> | 498. <i>delicatula, Fr.</i> | 4797 |
| 494. <i>smilacis, Schw.</i> | 499. <i>solani, Reinke.</i> | 4805 |
| 495. <i>aurantium, Wall.</i> | 500. <i>Oropsensis, Ces.</i> | 4806 |
| 496. <i>granatum, Wallr.</i> | 501. <i>mobilis, Tode.</i> | 4795 |
| 497. <i>fibriseda, S.</i> | 502. <i>lageniformis, B. & C.</i> 4801 | |

GEN. 17. LASIONECTRIA, Sacc.—Perithecia hirtella.

a. NOTARISIELLA. Sporidia continua.

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|--|---|------|
| 503. <i>Rousselliana, M.</i> | 505. <i>carnea, Desm.</i> | 4572 |
| 504. <i>villosula, Speg.</i> | 506. <i>nigroviridis, Cr.</i> | 4573 |

b. LASIONECTRIA, sporidia uniseptata.

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|--------------------------------------|-----|------|--|------|
| 507. fulva, <i>Berk.</i> | ... | 4570 | 512. dorcas, <i>B.</i> & <i>Br.</i> <i>Grev.</i> | |
| 508. mantuana, <i>Sacc.</i> | ... | 4775 | xii. 82. | |
| 509. lasioderma, <i>Ell.</i> | ... | 4776 | 513. punctum, <i>Boud.</i> ... | 4780 |
| 510. suffulta, <i>B.</i> & <i>C.</i> | ... | 4762 | 514. Rexiana, <i>Ellis.</i> ... | 4781 |
| 511. hirtella, <i>S.</i> & <i>S.</i> | ... | 4777 | 515. terrestris, <i>Cr.</i> ... | 4783 |
| | | | 516. macrostoma, <i>B.</i> & <i>C.</i> | 4778 |

c. Sporidia oblonga guttulata.

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|--|------|---------------------------------|-------------------------------------|--|
| 517. flava, <i>Ca.</i> | ... | 4957 | 518. Jungermanniae, <i>Cr.</i> 4959 | |
| | | | d. Sporidia 2-5 septata. | |
| 519. volutella, <i>B.</i> & <i>Br.</i> ... | 4941 | 520. funicola, <i>Berk.</i> ... | 4949 | |
| | | | e. Sporidia 6-10 septata. | |
| 521. hirta, <i>Blox.</i> | ... | 4932 | | |

GEN. 18. **GIBBERELLA**, *Sacc.* ii. 552.—Perithecia glabra superficialis, cyanea vel violacea.

a. LISEA, sporidia didyma, hyalina.

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|-----------------------------|-----|------|-----------------------------------|------|
| 522. nemorosa, <i>Sacc.</i> | ... | 4828 | 524. australis, <i>Speg.</i> ... | 4830 |
| 523. Buxi (<i>Fckl.</i>) | ... | 4829 | 525. vitis (<i>Niessl.</i>) ... | 4831 |

b. GENUINA, sporidia triseptata.

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|-----------------------------|-----|------|---------------------------------------|--|
| 526. pulicaris, <i>Fr.</i> | ... | 4973 | 531. cyanogena, <i>Desm.</i> 4978 | |
| 527. baccata, <i>Wallr.</i> | ... | 5974 | 532. acervalis, <i>Moug.</i> ... 4979 | |
| 528. moricola, <i>Not.</i> | ... | 4975 | 533. Euonymi, <i>Fckl.</i> ... 4980 | |
| 529. flacca, <i>Wallr.</i> | ... | 4976 | 534. Mapaniæ, <i>S.</i> ... 4981 | |
| 530. Saubinetii, <i>M.</i> | ... | 4977 | | |

c. Species dubiae.

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|------------------------------------|-----|------|-----------------------------------|------|
| 535. polycocca, <i>M.</i> | ... | 4982 | 537. cicatrisata, <i>Pr.</i> ... | 4984 |
| 536. ficina, <i>C.</i> & <i>H.</i> | ... | 4983 | 538. agglomerata, <i>Fr.</i> 4985 | |

GEN. 19. **HYPONECTRIA**, *Sacc.* ii. 455.—Perithecia tecta.

a. Sporidia continua.

- | | | | | |
|---|------|----------------------------------|----------------------------------|------|
| 539. buxi, <i>D. C.</i> | ... | 4579 | 541. Queletii, <i>Karst.</i> ... | 4581 |
| 540. flavonitens, <i>S.</i> & <i>S.</i> ... | 4580 | 542. gossypii, <i>Schwz.</i> ... | 4582 | |

b. CHARONECTRIA. Sporidia uniseptata, hyalina.

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| 543. consolationis, <i>Sacc.</i> ... | 4610 | 544. succinea, <i>Rob.</i> ... | 6172 |
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c. SPEGAZZINULA. Sporidia uniseptata, fusca.

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| 545. dubitationum, <i>Speg.</i> ... | 4919 |
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d. CESATIELLA. Sporidia 3 septata.

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| 546. australis, <i>S.</i> & <i>Sp.</i> ... | 4986 |
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Sub-Fam. III. PSEUDONECTRIÆ.

GEN. 20. **HYSTRICULA**, Cooke.—Cæspitosa erumpens. Peritheciis confluentibus vel discretis, tomentosis, mollibus, corneo-membranaceis. Ostiolis teretibus longissimis.

* Sporidia globosa, hyalina.

547. Montagnei, Cooke, Grev. xii, 83.

GEN. 21. **PASSERINULA**, Sacc.—Perithecia candida, immersa, ostiolo cylindrico.

* Sporidia uniseptata, colorata.

548. candida, Sacc. ... 4918

GEN. 22. **MELANOSPORA**, Ca.—Perithecia simplicia, ostiolo subulato-rostrato (vel erostrato) apice sæpe penicillato.

A. **VITTADINULA**. Subiculo nullo. Perithecia erostrata. Sporidia continua fusca.

549. epiphærium, P. & P. 4591 551. fimicolum (Hans.) 4593
550. aculeatum (Hans.) ... 4592

B. *Perithecia rostrata*.

a. EU-MELANOSPORA. Sporidia continua.

- | | |
|-----------------------------------|--------------------------------|
| 552. chionea, Fr. ... 4594 | 559. Zobelii, Ca. ... 4601 |
| 553. vervecina, Desm. ... 4595 | 560. vitrea, Ca. ... 4602 |
| 554. lagenaria, Fr. ... 4596 | 561. leucotricha, Ca. ... 4603 |
| 555. Helvellæ, Cke. ... 4597 | 562. Zamiæ, Ca. ... 4604 |
| 556. arachnophila, Fckl. ... 4598 | 563. barbata, P. ... 4605 |
| 557. caprina, Fr. ... 4599 | 564. parasitica, Tul. ... 4606 |
| 558. arenaria, M. ... 4600 | |

b. BIVONELLA. Sporidia muriformia.

565. chrysomalla, B. & Br. 4607

c. *Dubiæ*.

566. lucifuga, Jungh. ... 4608 567 Cœmansii, West.... 4609

GEN. 23. **ACROSPERMUM**, Tode.—Perithecia elongata vel clavata, carnosa sub-cornescens. Sporidia filiformia.

a. BARYA. Perithecia gregaria.

568. parasiticum, Fckl. 5870, 5003 Grev. xii. 101

b. EU-ACROSPERMUM. Perithecia sparsa.

- | | |
|----------------------------------|--|
| 569. compressum, Tode. ... 5863 | 575. Robergeanum, Desm.,
Grev. xii, 101. |
| 570. conicum, P. ... 5864 | 576. viridulum, B. & C. 5869 |
| 571. graminum, Lib. ... 5865 | 577. corrugatum, Ellis 5871 |
| 572. decipiens, Pass. ... 5866 | 578. fultum, Hark. Trans.
Cal. A., 1884, 47 |
| 573. Ravenelii, B. & C. ... 5867 | |
| 574. foliolum, B. ... 5868 | |

c. Species dubiæ.

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|--------------------------------|-----------------------------|
| 579. pyramidale, Tode ... 5872 | 581. cornutum, Fr. ... 5874 |
| 580. ? laetum (Ehr.) ... 5873 | |

BRITISH FRESH-WATER ALGÆ.

In answer to various communications as to the progress of this work, we are able to announce that the plates of Part IX. are in the printer's hands, and will shortly be ready for publication. Part X. is also in an advanced condition, and this will contain the *Rhodophyceæ*, which, with supplement, introduction, glossary, and Index, will complete the work. It is hoped that this consummation will be reached about September, before active mycological operations commence. A few copies of the complete work will be bound in two volumes, cloth, when finished, but unfortunately the number will be much smaller than we could have desired, and therefore only prompt application will secure them, before the volumes share the fate of their predecessors, by Dr. Hassall, and become notified as "out of print."

DESMIDS OF THE UNITED STATES.

The Rev. F. Wolle has just published a volume on the above subject, with 52 plates and descriptive letterpress, at the moderate charge of five dollars, which would be equivalent to a British guinea. Although we have not yet seen it, there is no doubt of both figures and descriptions being fully reliable, and we commend it with confidence to the attention of our English readers. A large number of the species are also British. The address of the author is Bethlehem, Penn., U.S.A.

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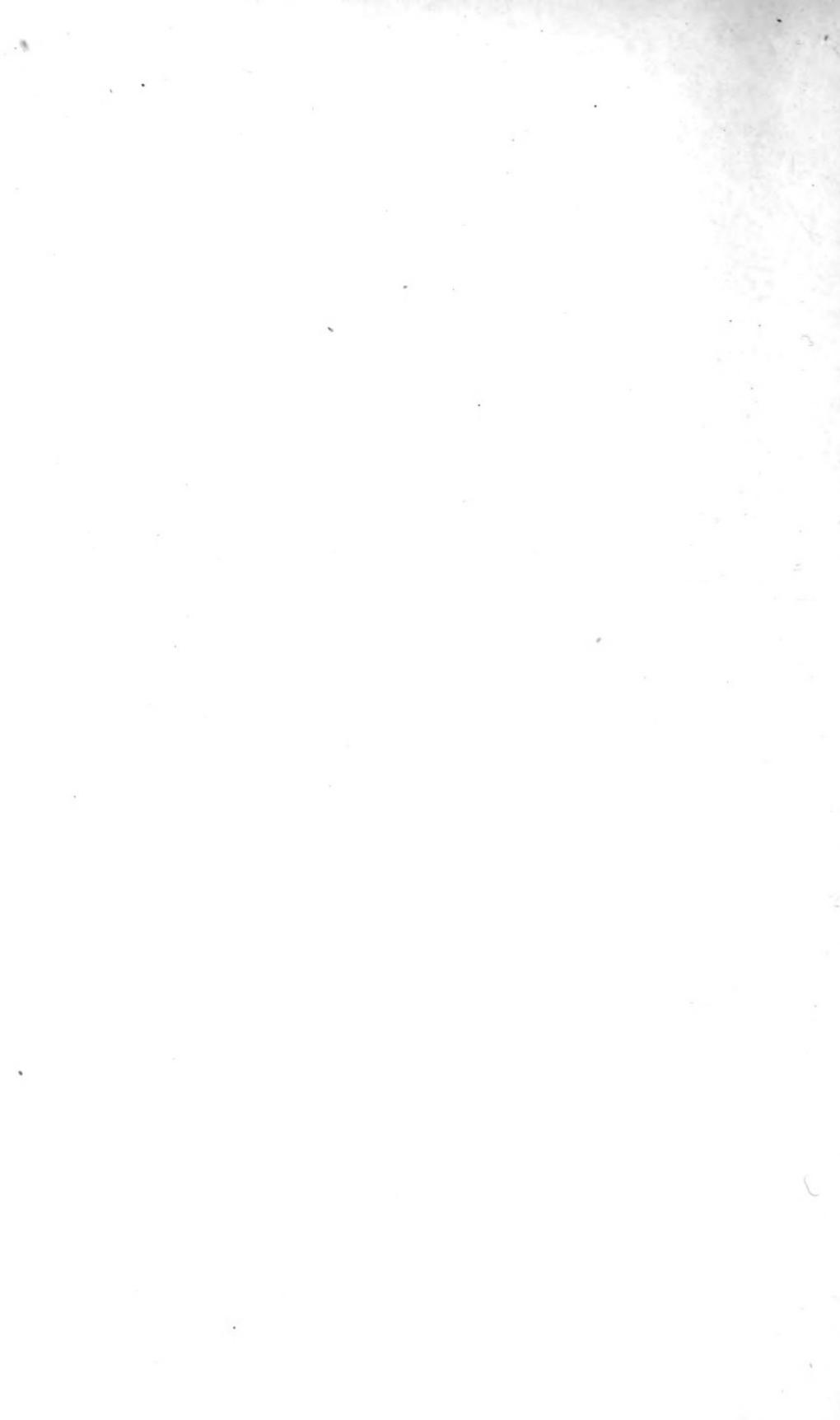
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APPENDIX, containing revision of the Hymenomycetes in "Cooke's Handbook of British Fungi," paged separately 1 to 48.





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